

SOFIA - AFT CAVITIES WIND TUNNEL TEST

SOFIA II: FINAL REPORT

APPENDIX E

11.12.11
9.10.22
1.70

Prepared for

SVERDRUP TECHNOLOGY, INC.
AMES DIVISION
NASA-AMES RESEARCH CENTER
MOFFETT FIELD, CA 94035

Under SUBCONTRACT SC-027

N95-32682

Unclass

G3/02 0059622

31 DECEMBER 1994

By

ROSE ENGINEERING & RESEARCH, INC.
P.O. BOX 5146
INCLINE VILLAGE, NV 89450

(NASA-TM-110673) SOFIA: AFT
CAVITIES WIND TUNNEL TEST Final
Report (NASA Ames Research
Center) 70 p

APPENDIX E

CONFIGURATION PHOTO AND BRIEF DESCRIPTION

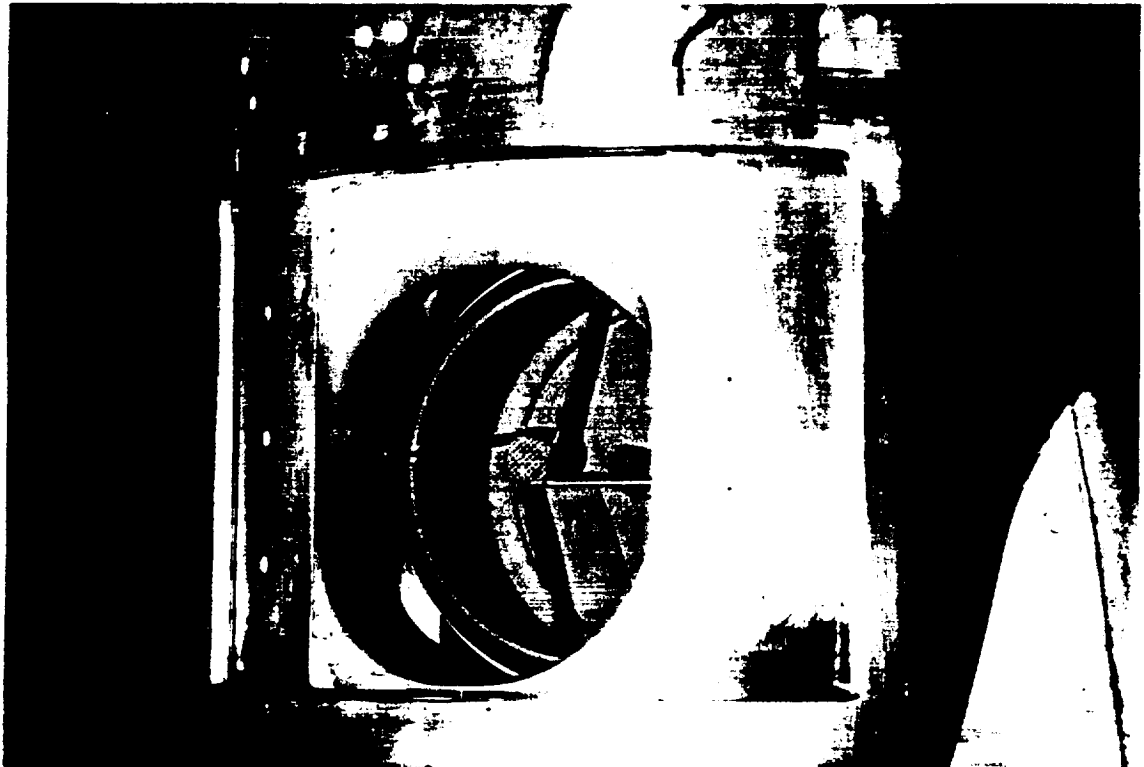
SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 7
Aft Treatment: 200 IA - 1 - (D)
Fwd Treatment: 200 IA - 1 - (D)
Fillers: None

Scoring

Cruise SPL: 137.5
Mach Margin: good
 α Margin: good
 β Margin: good
 γ Margin: good
Overall Score: good



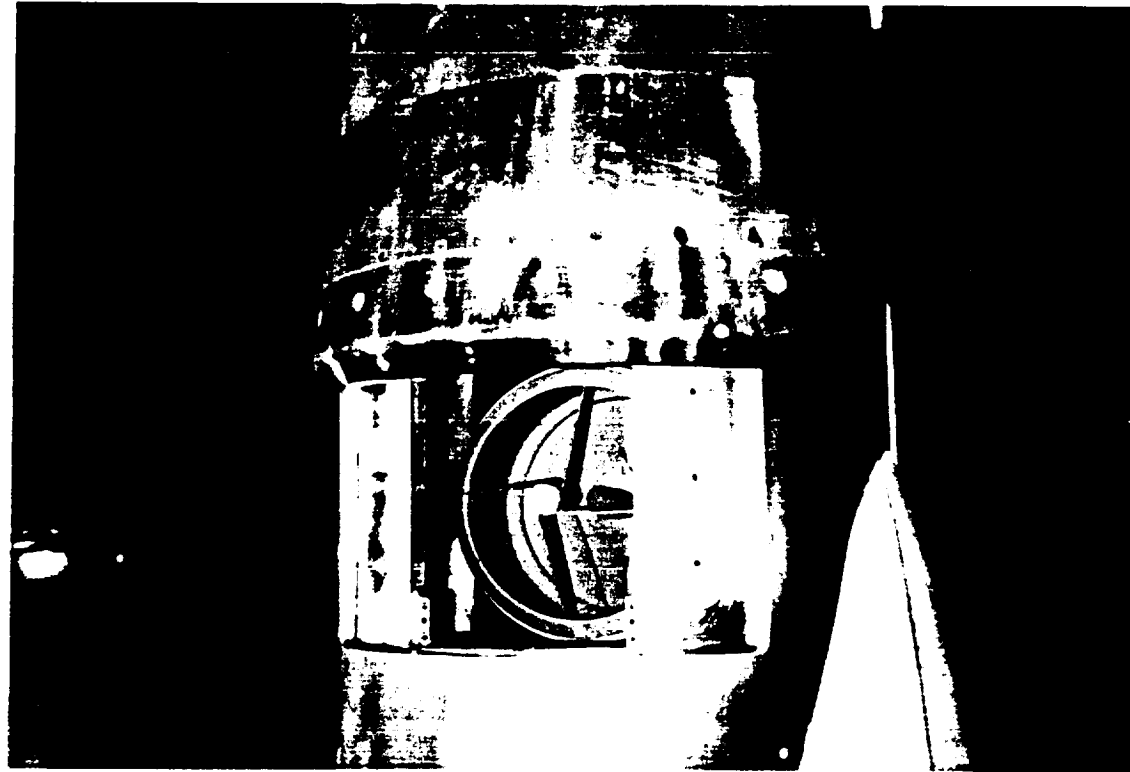
SOFIA II Wind Tunnel Test

Configuration Description

Configuration No.	<u>18</u>
Aft Treatment:	<u>None</u>
Fwd Treatment:	<u>None</u>
Fillers:	<u>None</u>
<u>Scoring</u>	
Cruise SPL:	<u>144.8</u>
Mach Margin:	<u>a/a</u>
α Margin:	<u>a/a</u>
β Margin:	<u>?</u>
γ Margin:	<u>a/a</u>
Overall Score:	<u>a/a</u>



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 19
Aft Treatment: External Ramp
Fwd Treatment: None
Fillers: None

Scoring

Cruise SPL: 150.5
Mach Margin: u/a
 α Margin: u/a
 β Margin: ?
 γ Margin: ?
Overall Score: u/a

SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 20
Aft Treatment: In. Ramp - 1-(1)
Fwd Treatment: None
Fillers: None

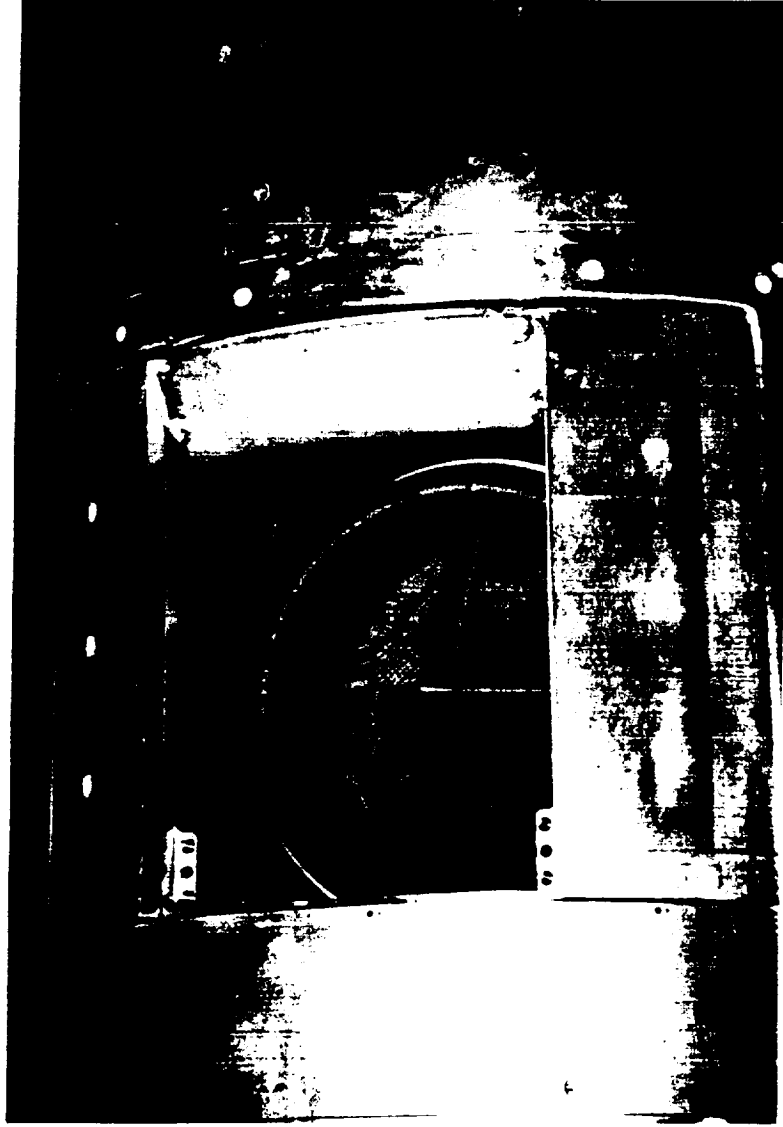
Scoring

Cruise SPL: 137.8
Mach Margin: fair
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test



Configuration Description

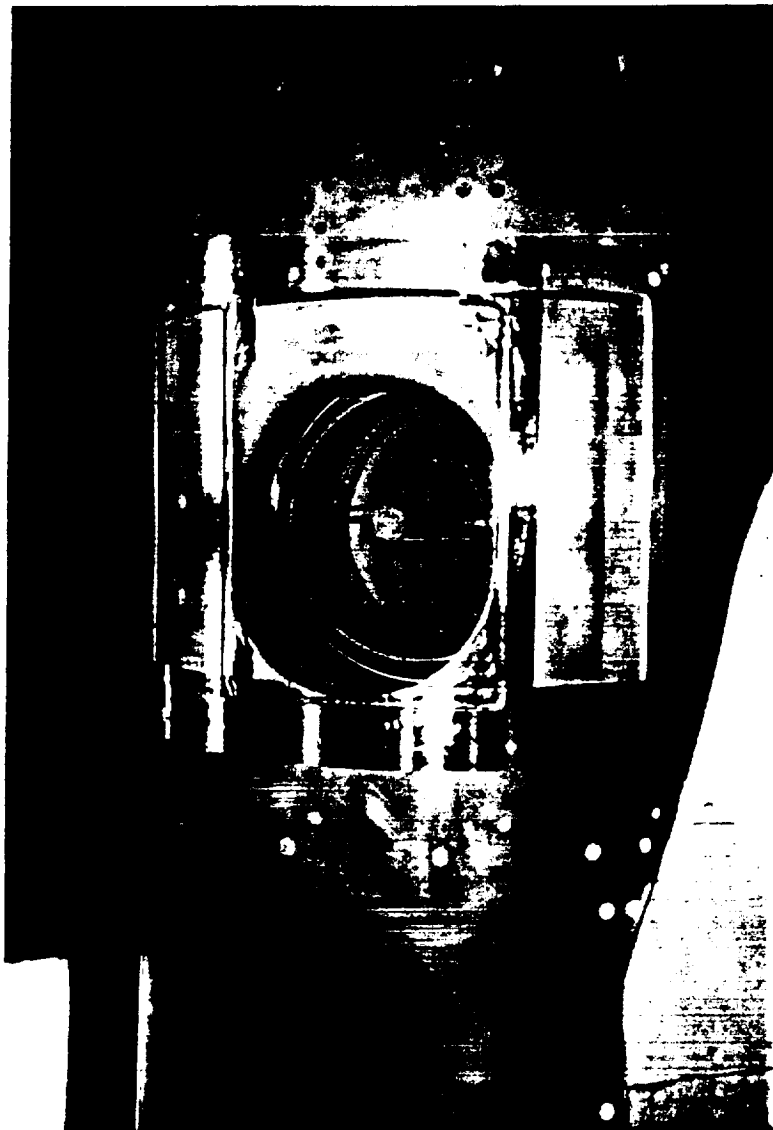
Configuration No. 21
Aft Treatment: In Ramp - 1 - (u)
Fwd Treatment: None
Fillers: Yes

Scoring

Cruise SPL: 138.7
Mach Margin: u/a
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: u/a

SOFIA II Wind Tunnel Test



Configuration Description

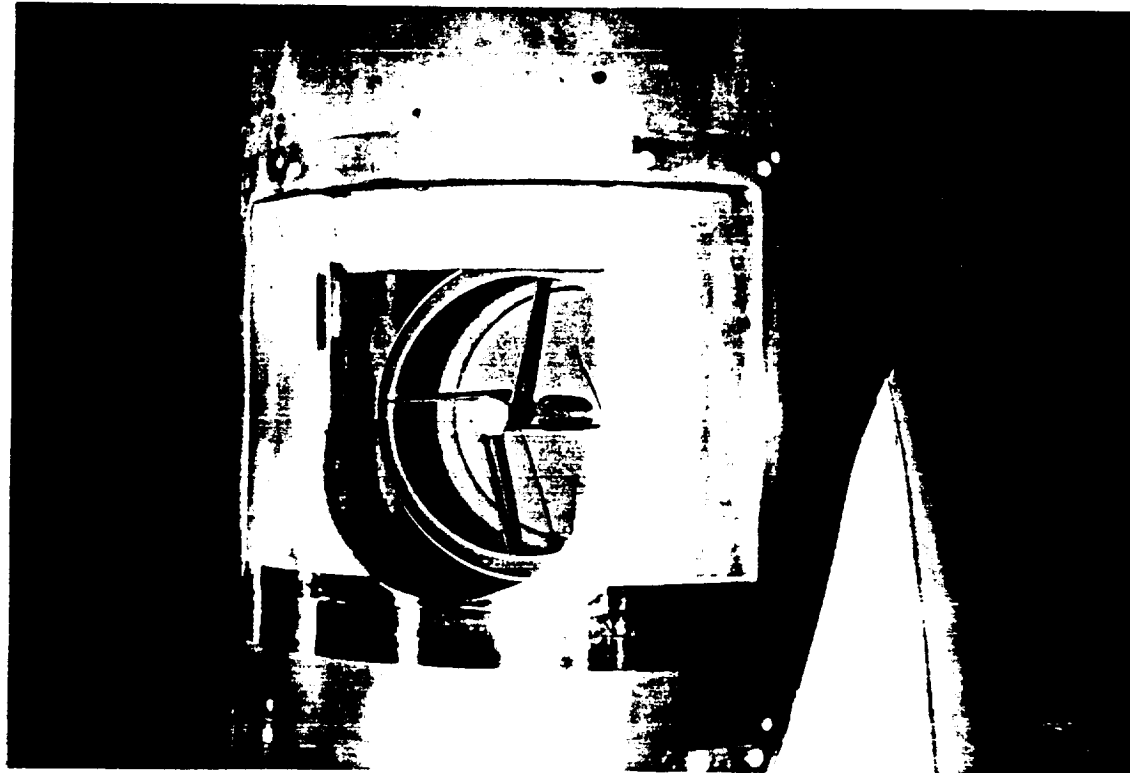
Configuration No. 23
 Aft Treatment: 200IA-1-(u)
 Fwd Treatment: 200IA-1-(u)
 Fillers: Yes

Scoring

Cruise SPL: 136.2
 Mach Margin: fair
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: fair

SOFIA II Wind Tunnel Test



Configuration Description

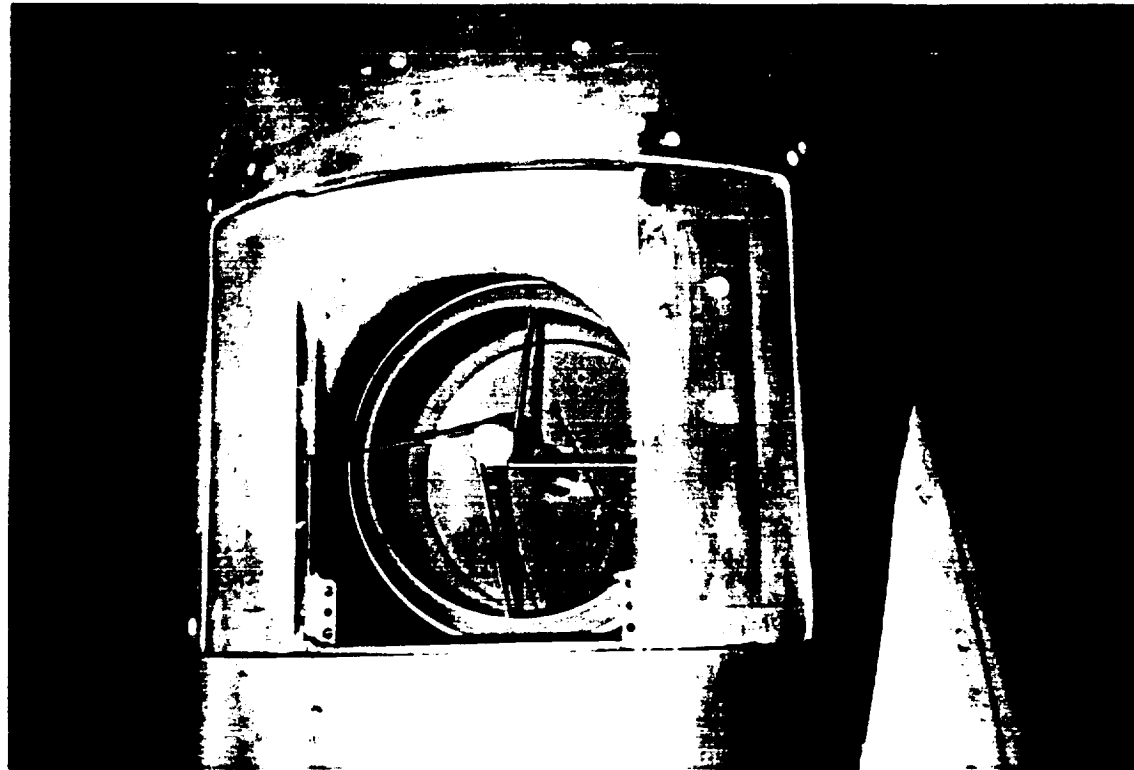
Configuration No. 26
 Aft Treatment: In Ramp - 1 - (u)
 Fwd Treatment: 200 LA - 1 - (u)
 Fillers: yes

Scoring

Cruise SPL: 148.9
 Mach Margin: u/a
 α Margin: u/a
 β Margin: ?
 γ Margin: ?

Overall Score: u/a

SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 27

Aft Treatment: 2001A -1 (D)

Fwd Treatment: none

Fillers: yes

Scoring

Cruise SPL: 135.5

Mach Margin: good

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: good

SOFIA II Wind Tunnel Test



Configuration Description

Configuration No.	28
Aft Treatment:	<i>In ramp - 1 (D)</i>
Fwd Treatment:	<i>none</i>
Fillers:	<i>yes</i>

<u>Scoring</u>	
Cruise SPL:	<i>137.6</i>
Mach Margin:	<i>4/2</i>
α Margin:	<i>?</i>
β Margin:	<i>?</i>
γ Margin:	<i>?</i>
Overall Score:	<i>4/2</i>

SOFIA II Wind Tunnel Test

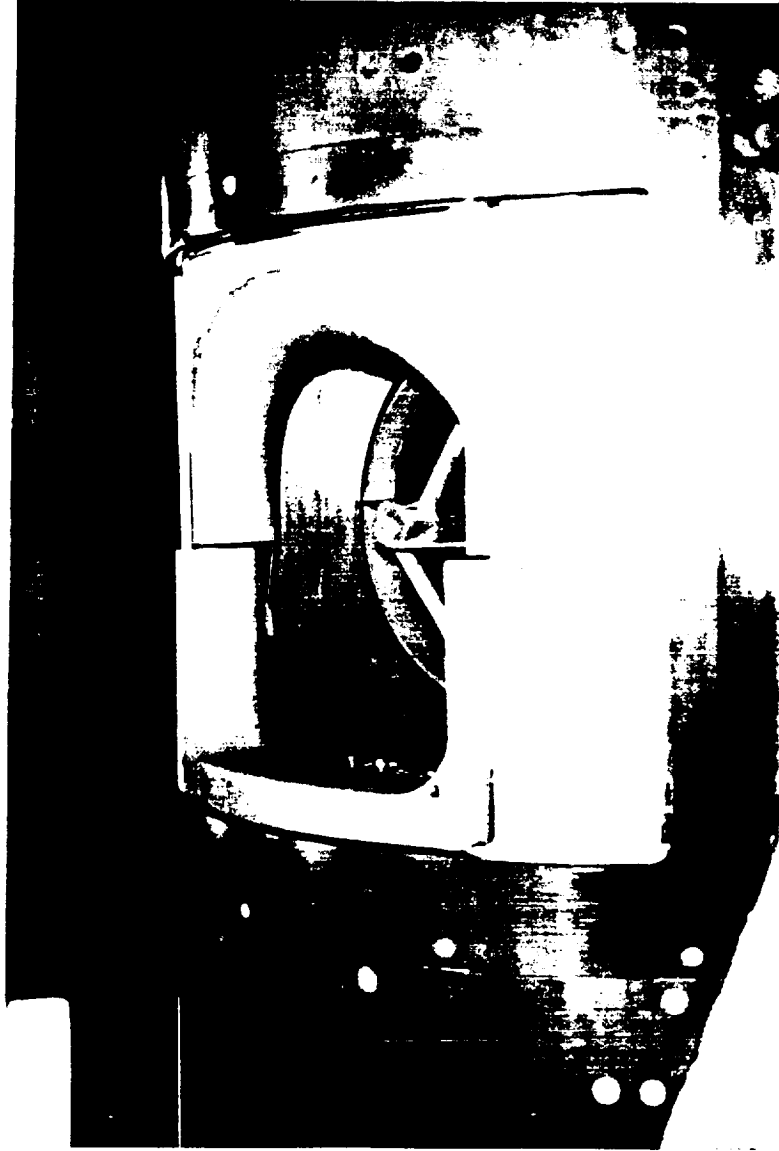
Configuration Description

Configuration No. 29
Aft Treatment: 200IA - A - (D)
Fwd Treatment: In Ramp - A - (u)
Fillers: None

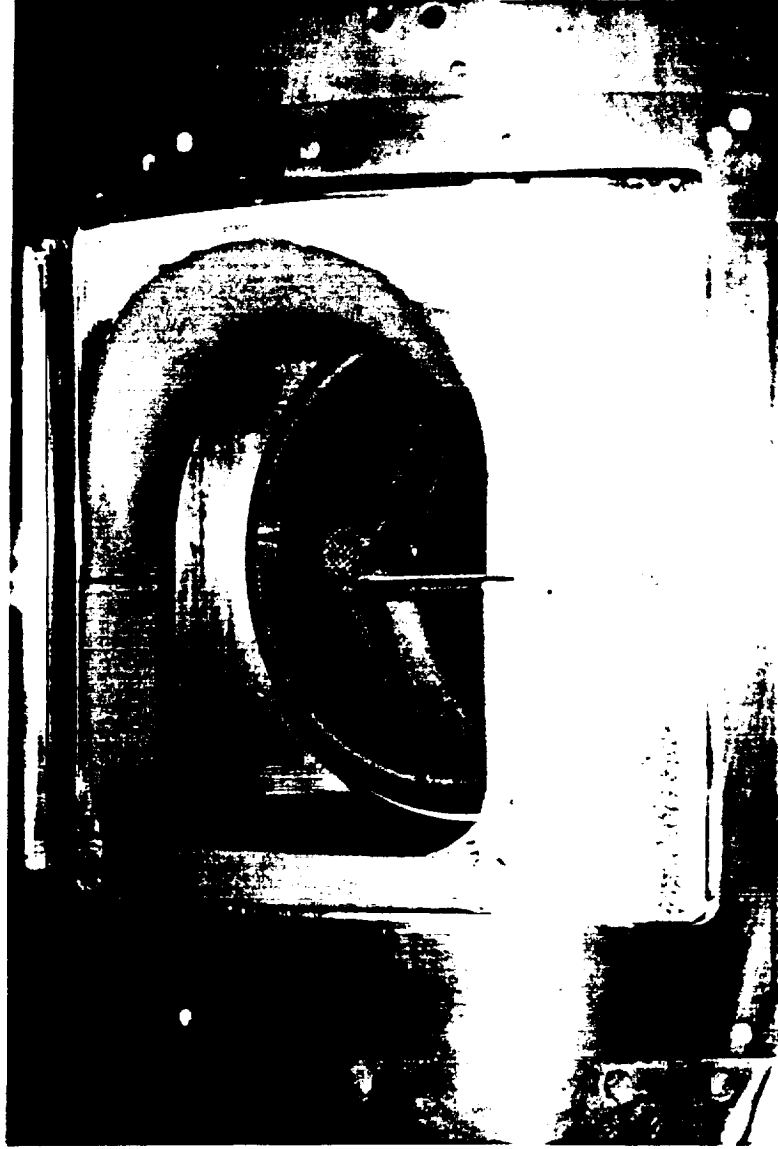
Scoring

Cruise SPL: 136.2
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: good

Overall Score: good



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 30
Aft Treatment: 200 IA - A - (D)
Fwd Treatment: In Ramp - A - (D)
Fillers: None

Scoring

Cruise SPL: 137.5
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: good

Overall Score: good

SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 31

Aft Treatment: In Ramp - A - (D)

Fwd Treatment: In Ramp - A - (D)

Fillers: None

Scoring

Cruise SPL: 139.0

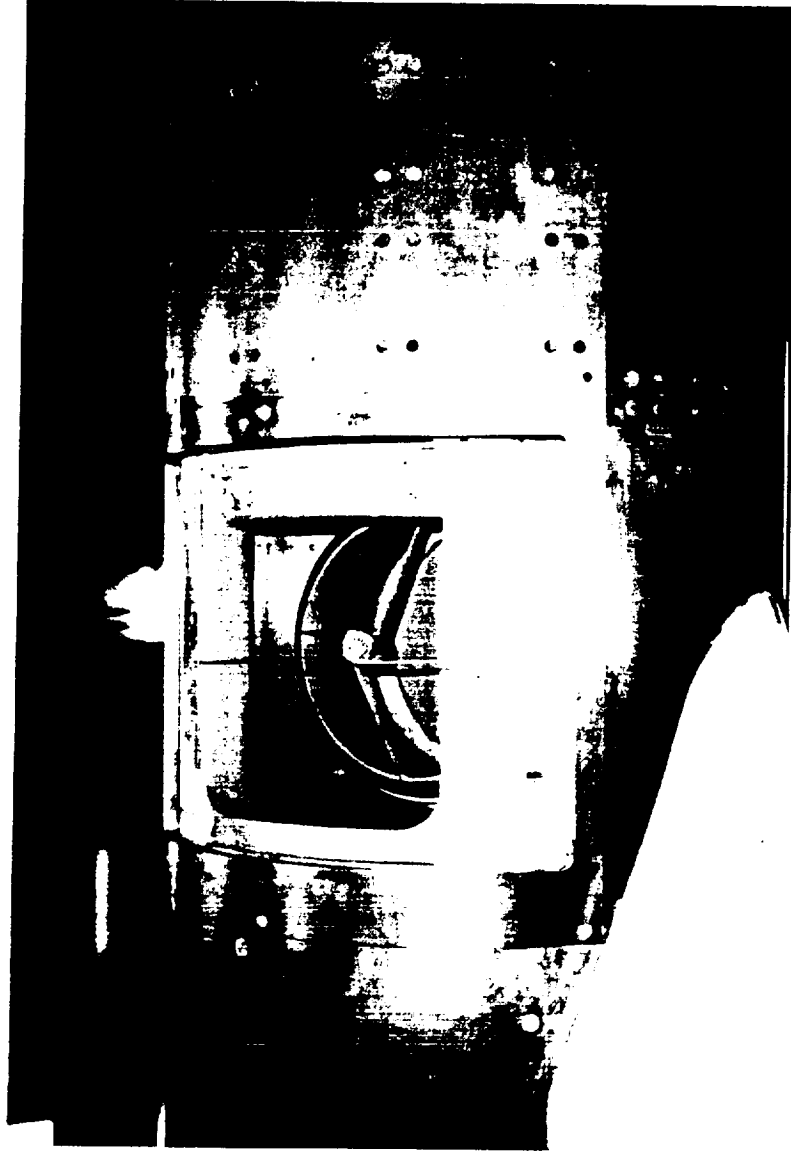
Mach Margin: good

α Margin: good

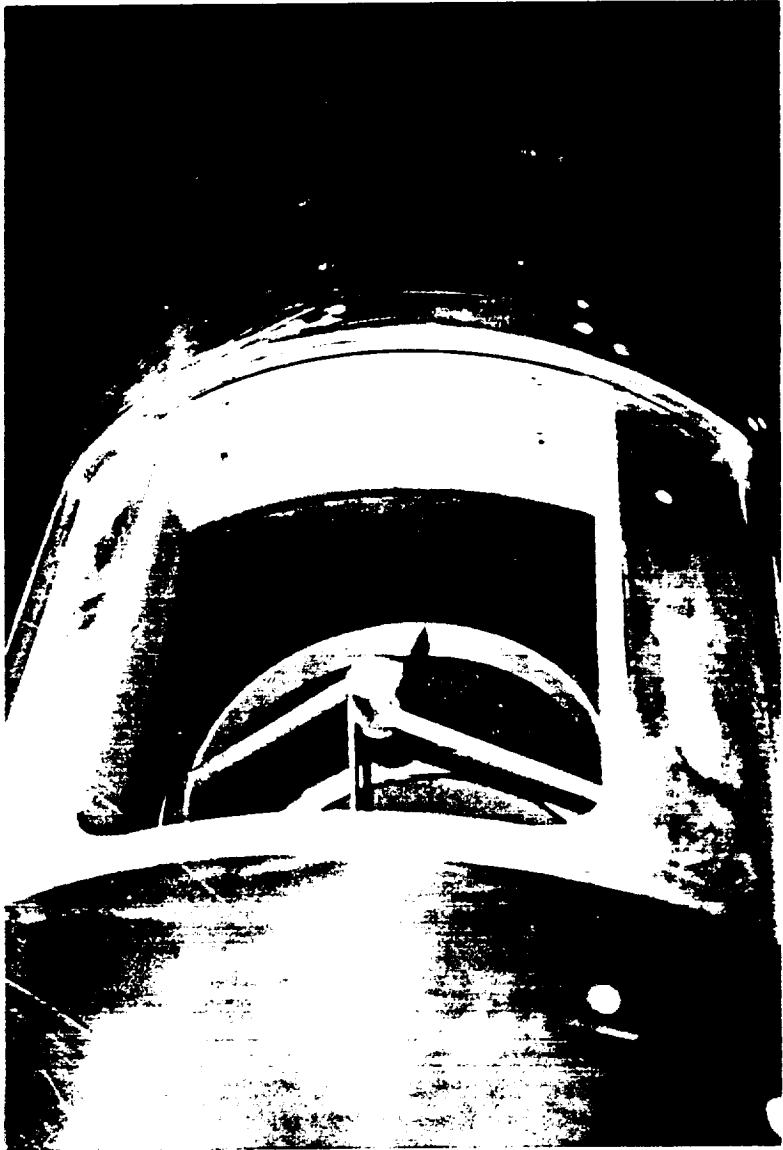
β Margin: ?

γ Margin: good

Overall Score: u/a - High SPL



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 32
Aft Treatment: In Ramp - A - (D)
Fwd Treatment: In Ramp - A - (D)
Fillers: None
* Large Skirt

Scoring

Cruise SPL: 139.8
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a

SOFIA II Wind Tunnel Test

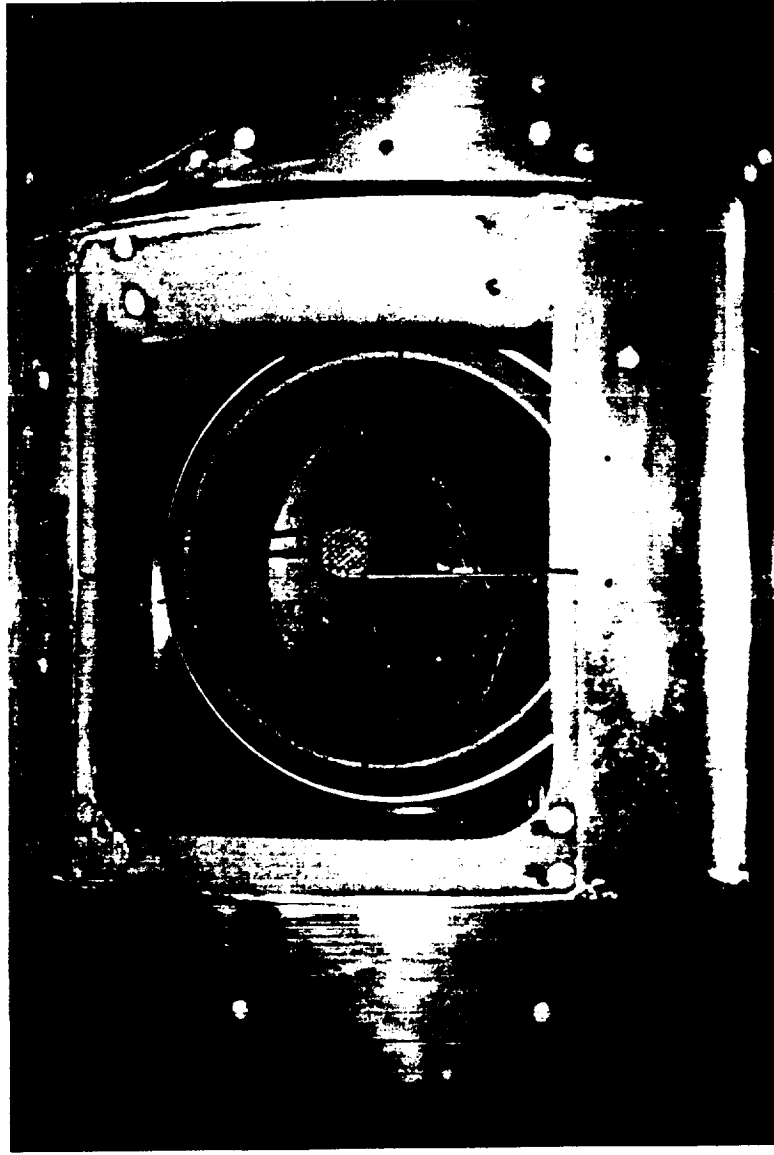
Configuration Description

Configuration No. 33
Aft Treatment: In Ramp - A - (D)
Fwd Treatment: In Ramp - A - (D)
Fillers: None
* No Skirt

Scoring

Cruise SPL: 139.1
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

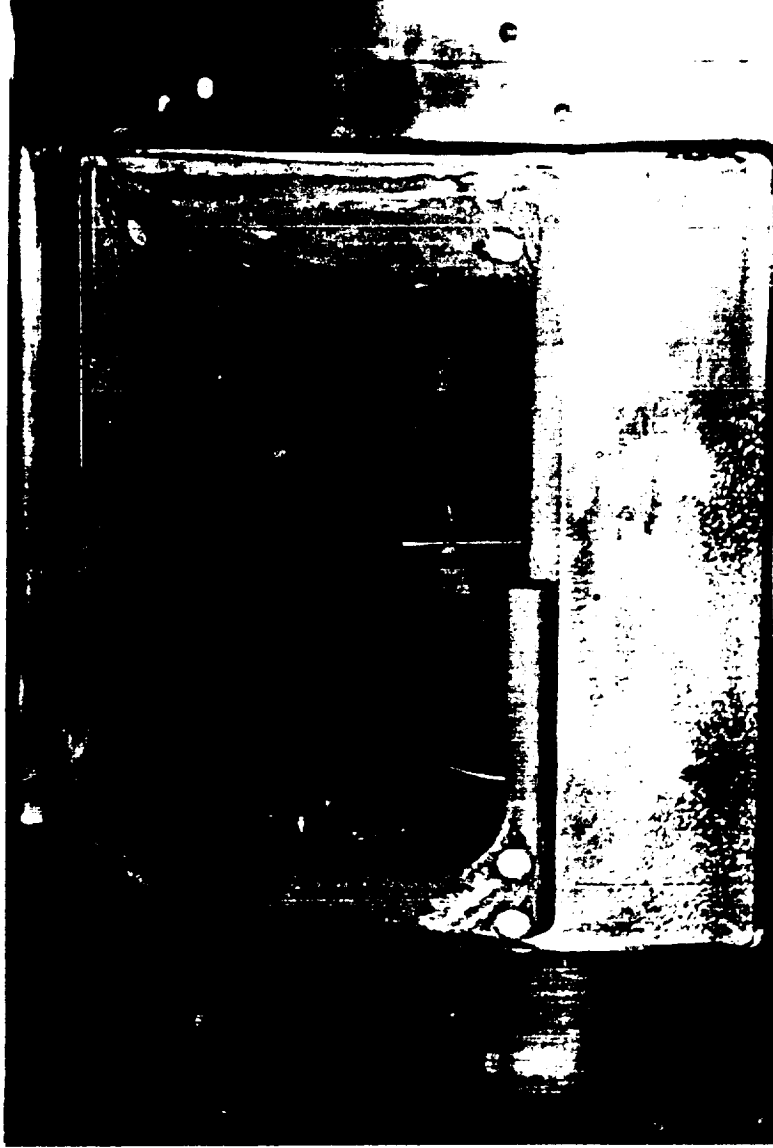
Configuration Description

Configuration No. 34
Aft Treatment: In Ramp - A - (D)
Fwd Treatment: In Ramp - A - (u)
Fillers: None

Scoring

Cruise SPL: 142.1
Mach Margin: fair
 α Margin: u/a
 β Margin: ?
 γ Margin: u/a

Overall Score: u/a



SOFIA II Wind Tunnel Test

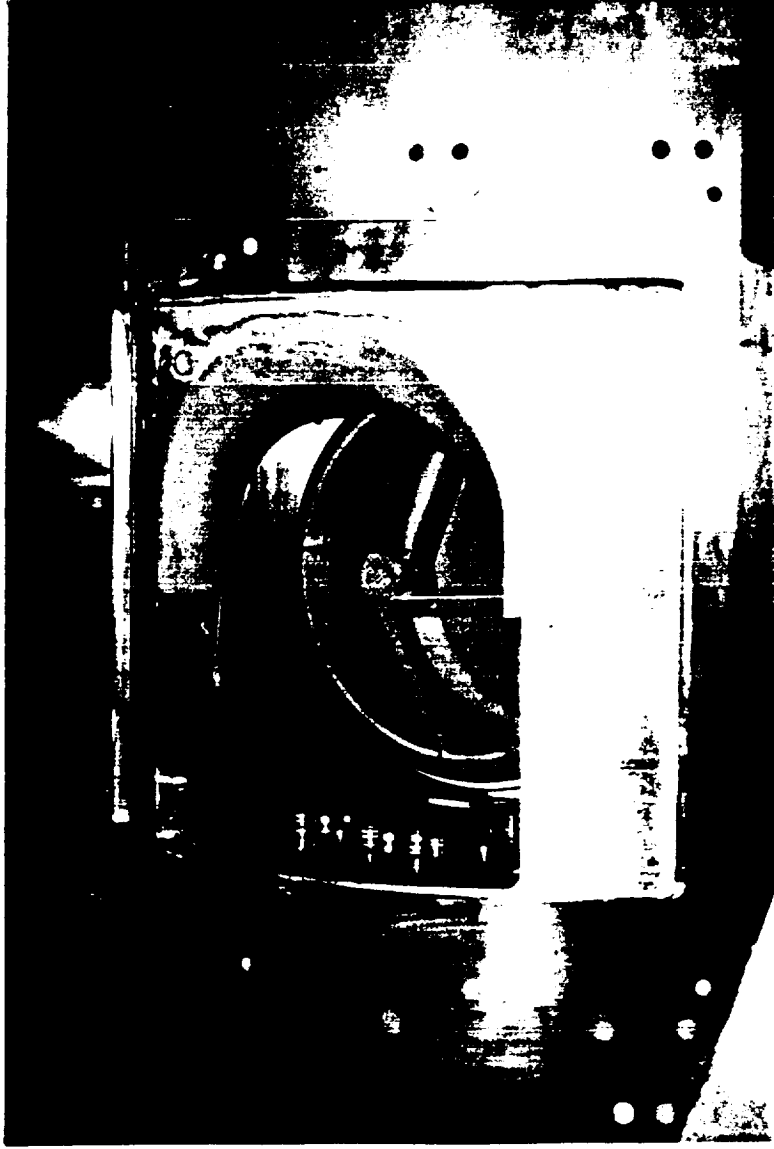
Configuration Description

Configuration No. 35
Aft Treatment: 200 IA - B - (D)
Fwd Treatment: None
Fillers: None

Scoring

Cruise SPL: 137.0
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: good

Overall Score: good



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 36

Aft Treatment: 200 IA - B - (D)

Fwd Treatment: 200 IA - B - (D)

Fillers: None

Scoring

Cruise SPL: 139.3

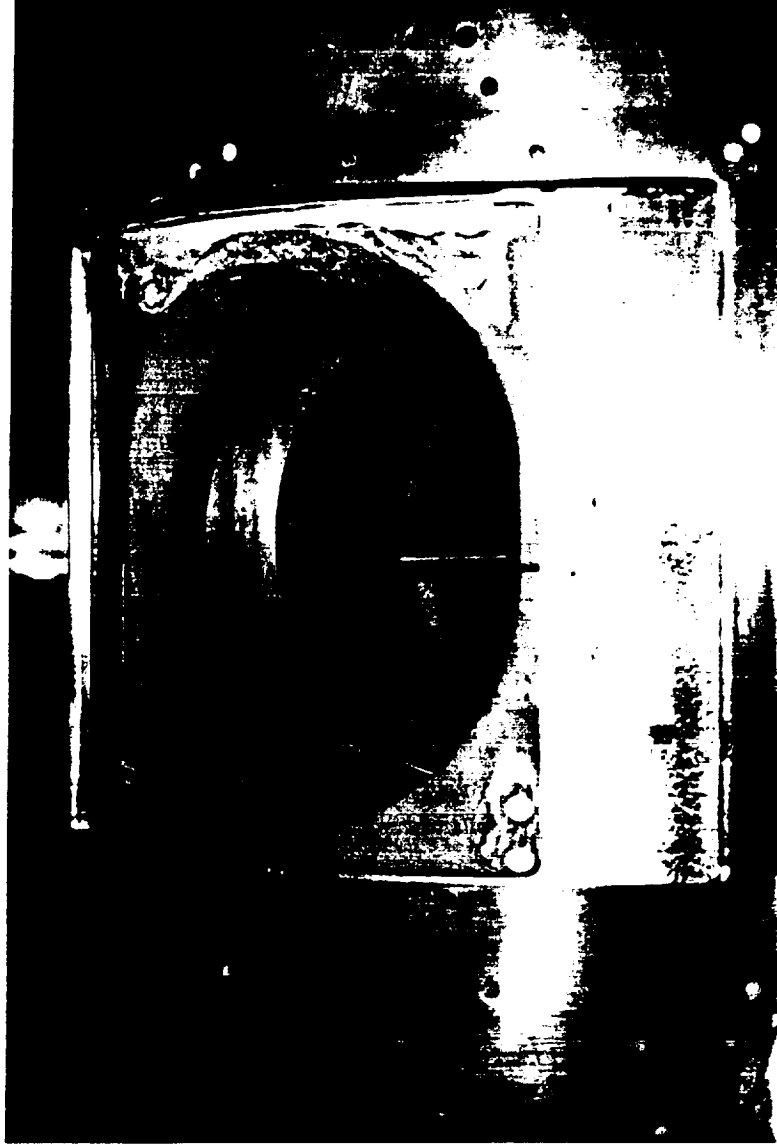
Mach Margin: a/a

α Margin: ?

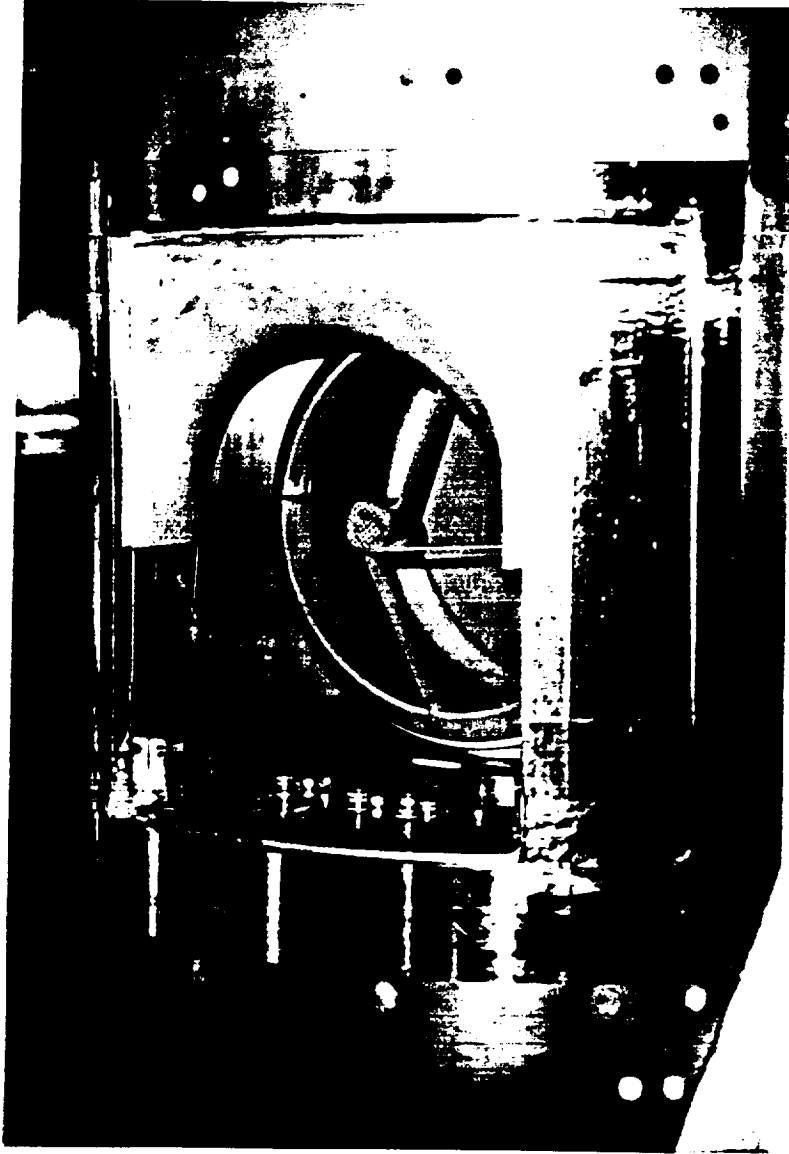
β Margin: ?

γ Margin: ?

Overall Score: a/a



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 37

Aft Treatment: 200 IA - B - (D)

Fwd Treatment: None

Fillers: Yes

Scoring

Cruise SPL: 136.8

Mach Margin: fair

α Margin: good

β Margin: ?

γ Margin: ?

Overall Score: fair

SOFIA II Wind Tunnel Test

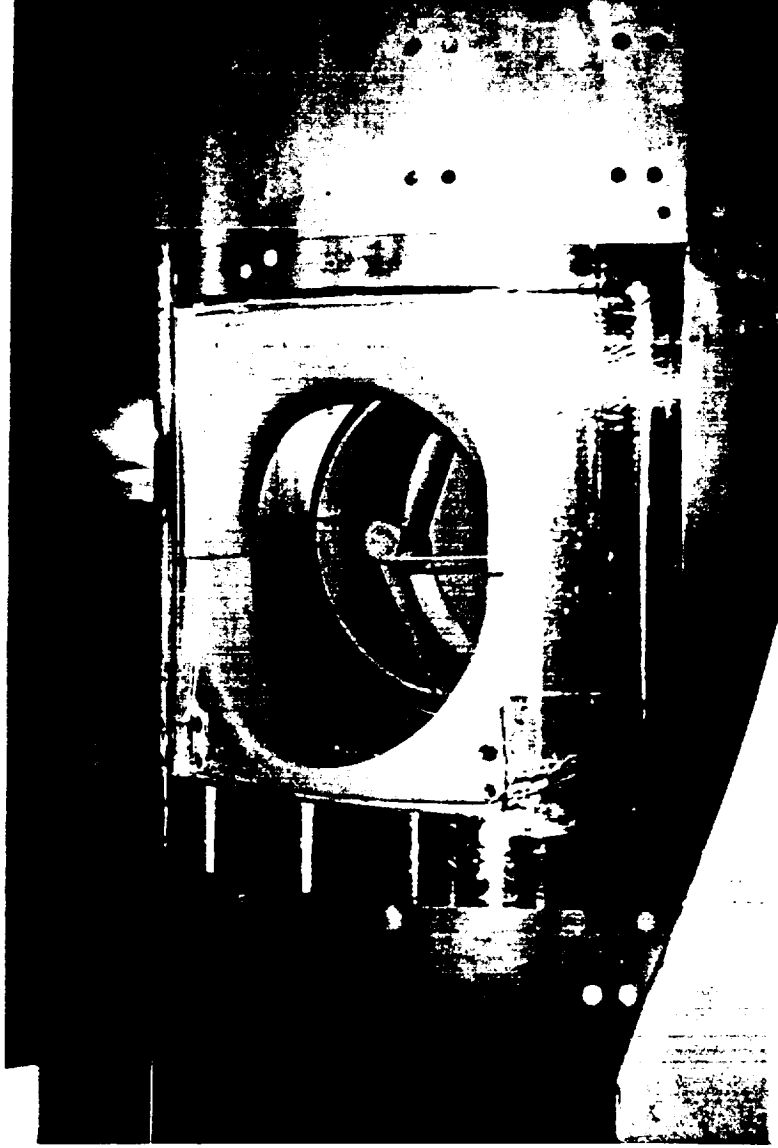
Configuration Description

Configuration No. 38
Aft Treatment: 200 IA - B - (D)
Fwd Treatment: 200 IA - B - (D)
Fillers: Yes

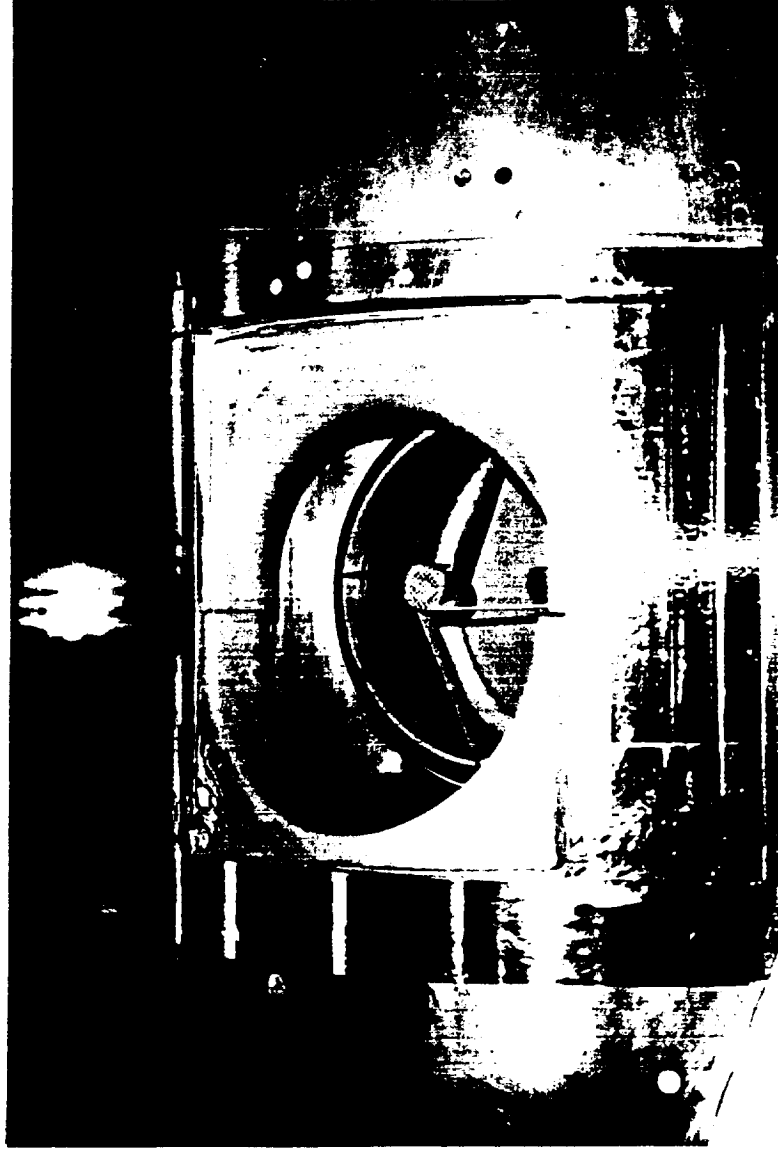
Scoring

Cruise SPL: 138.2
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 39
Aft Treatment: 200 IA - B - (D)
Fwd Treatment: 200 IA - B - (u)
Fillers: Yes

Scoring

Cruise SPL: 136.3
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: good

SOFIA II Wind Tunnel Test

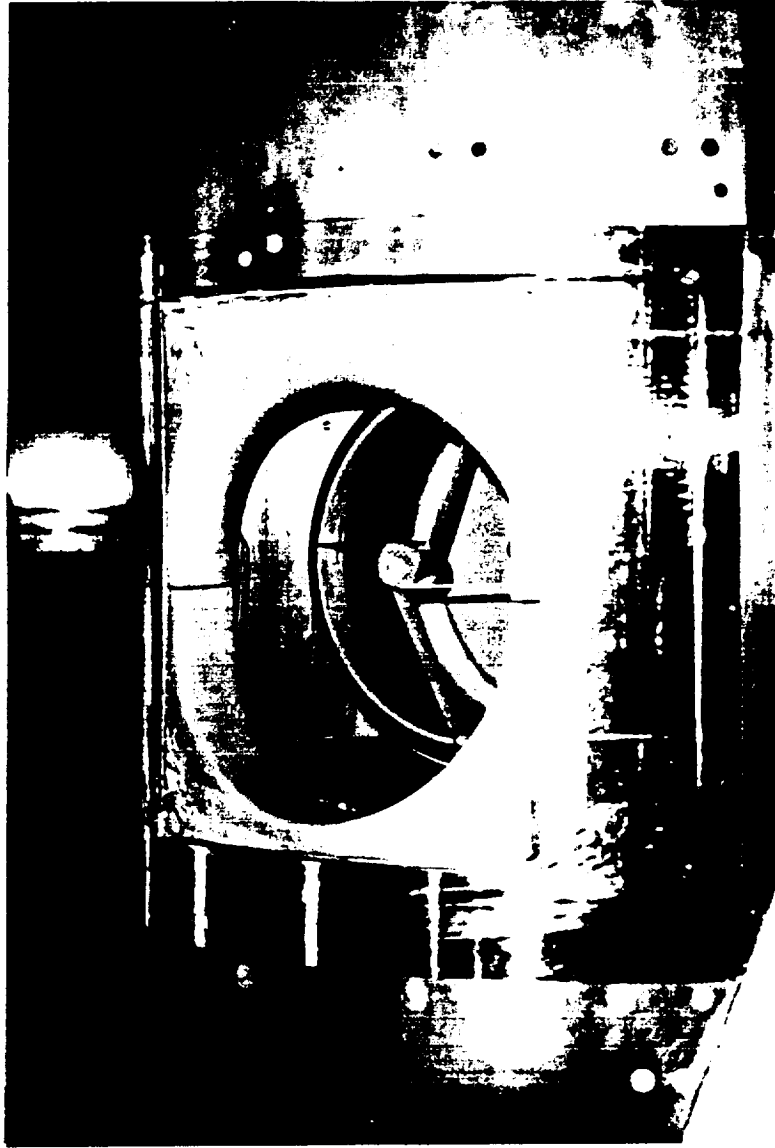
Configuration Description

Configuration No. 40
Aft Treatment: 200IA - B - (u)
Fwd Treatment: 200IA - B - (u)
Fillers: yes

Scoring

Cruise SPL: 149.8
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 41
Aft Treatment: 200IA - B - (u)
Fwd Treatment: In Ramp - B - (u)
Fillers: Yes

Scoring

Cruise SPL: 151.2
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

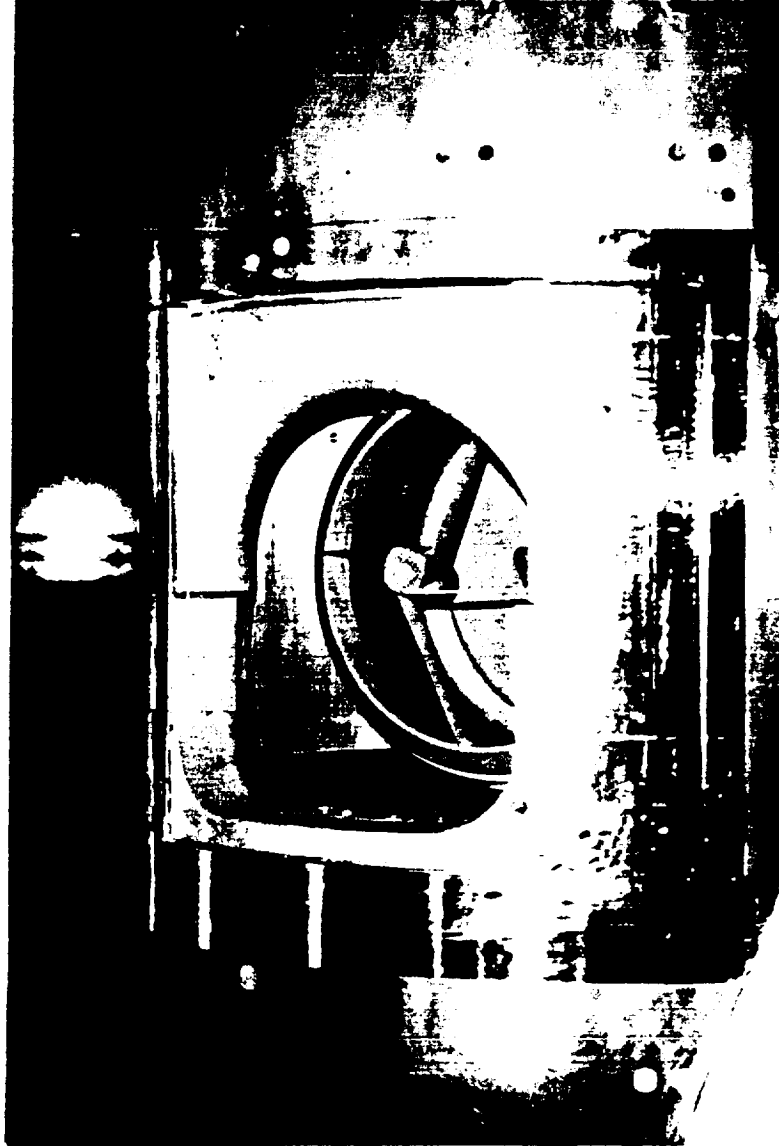
Configuration Description

Configuration No. 42
Aft Treatment: 200IA - B - (D)
Fwd Treatment: In Ramp - B - (C)
Fillers: yes

Scoring

Cruise SPL: 138.4'
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 43
Aft Treatment: 200IA - A - (D)
Fwd Treatment: In Ramp - A - (cl)
Fillers: yes

Scoring

Cruise SPL: 135.9
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 44
Aft Treatment: 200IA - A - (u)
Fwd Treatment: In Ramp - A - (u)
Fillers: yes

Scoring

Cruise SPL: 148.4
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

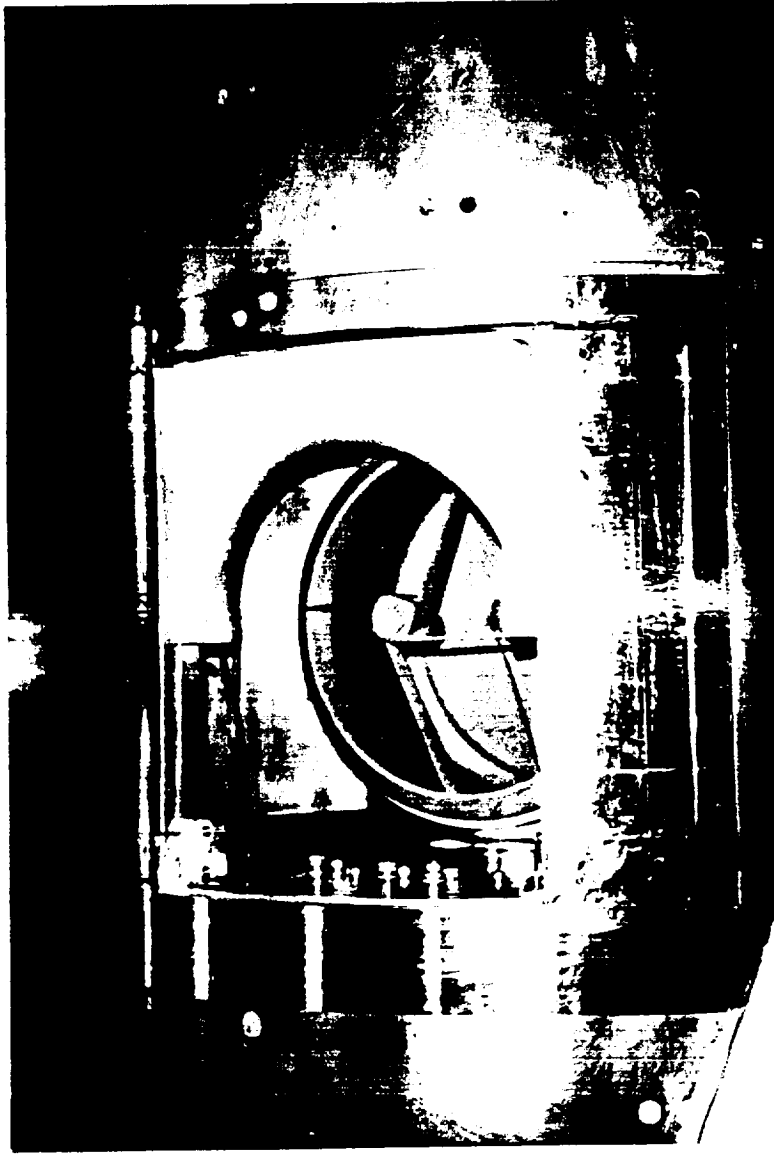
Configuration Description

Configuration No. 45
Aft Treatment: 200 IA - A - (u)
Fwd Treatment: None
Fillers: yes

Scoring

Cruise SPL: 147.9
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 46
Aft Treatment: In Ramp - A - (D)
Fwd Treatment: In Ramp - A - (u)
Fillers: yes

Scoring

Cruise SPL: 142.9
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 47
Aft Treatment: In Ramp - A - (u)
Fwd Treatment: In Ramp - A - (u)
Fillers: yes

Scoring

Cruise SPL: > 150
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

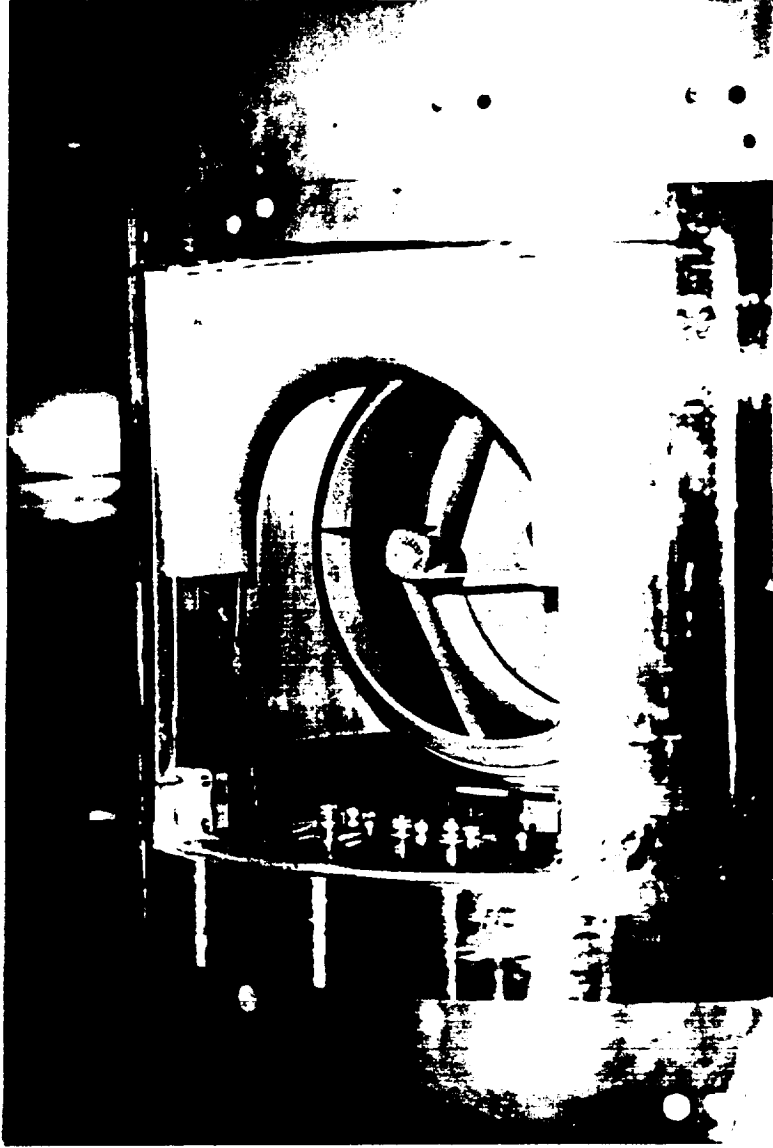
Configuration Description

Configuration No. 48
Aft Treatment: 200 IA - A - (D)
Fwd Treatment: None
Fillers: Yes

Scoring

Cruise SPL: 136.6
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

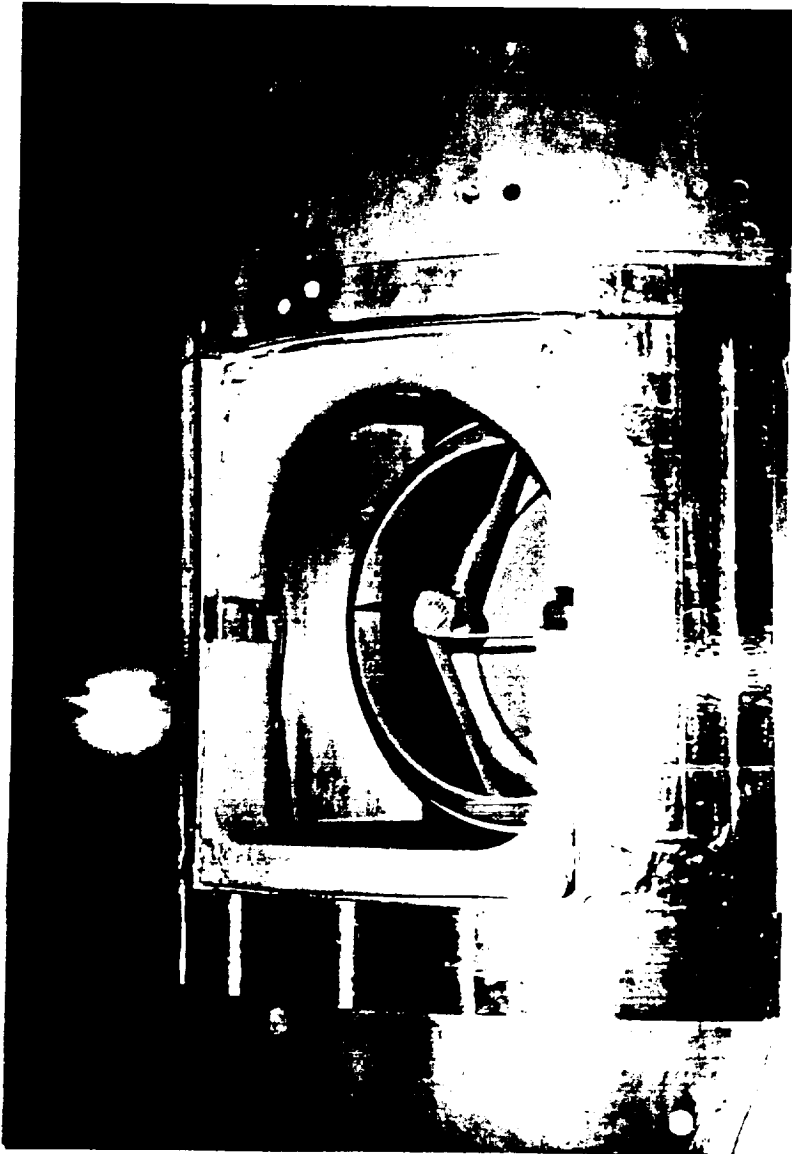
Configuration Description

Configuration No. 49
Aft Treatment: 200 IA - B (23") - (D) 1/2
Fwd Treatment: In Ramp - A - (A)
Fillers: yes

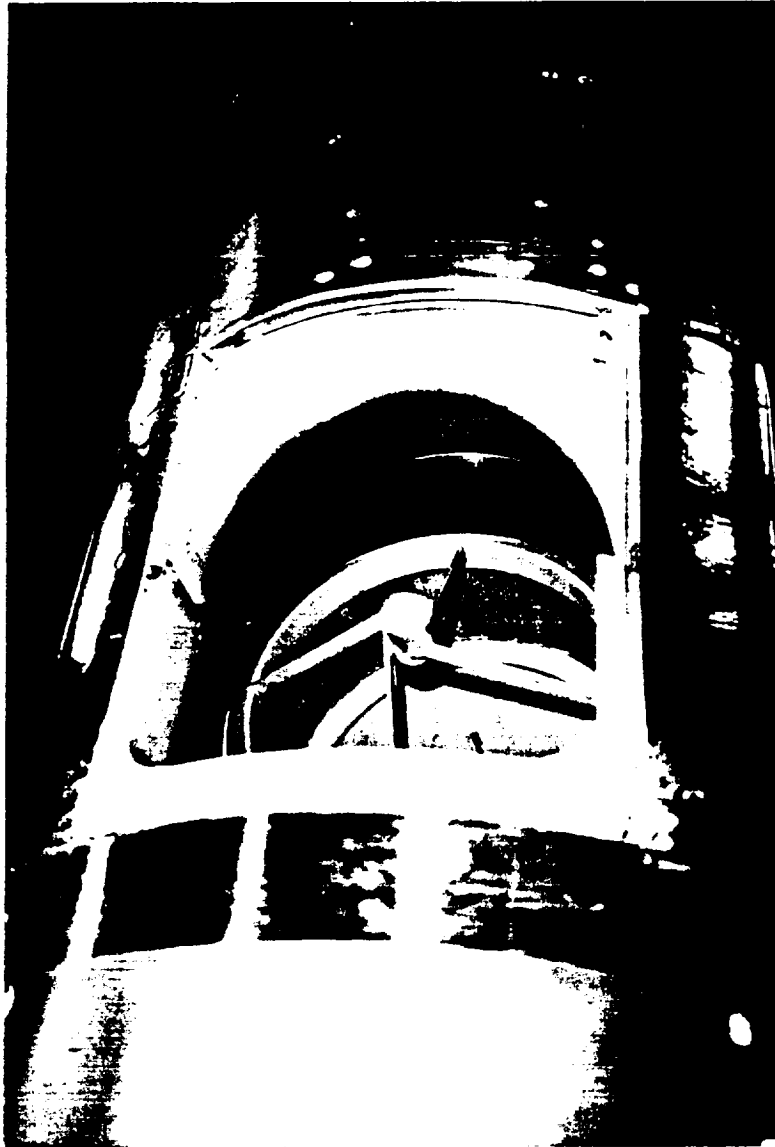
Scoring

Cruise SPL: 146.7
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 50
Aft Treatment: 200 IA - A (23") - (D) 1/2
Fwd Treatment: In Ramp - A - (U)
Fillers: yes
* No Skirt

Scoring

Cruise SPL: 142.5
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: 4/a

SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 51
Aft Treatment: 200IA-B(23")-(D) Lower
Fwd Treatment: In Ramp-A-(C)
Fillers: Yes
* No Skirt

Scoring

Cruise SPL: 141.2
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

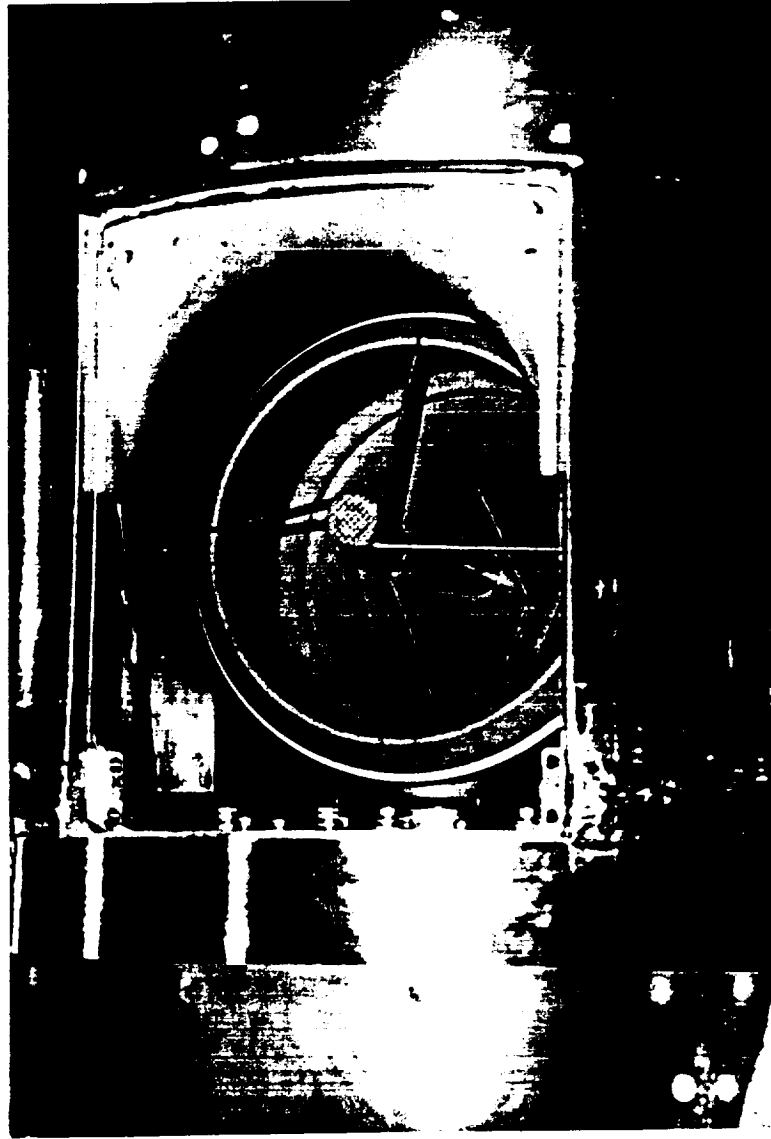
Configuration Description

Configuration No. 52
Aft Treatment: 200IA-B(23")-(D) lower
Fwd Treatment: None
Fillers: Yes
* No Skirt

Scoring

Cruise SPL: 139.4
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

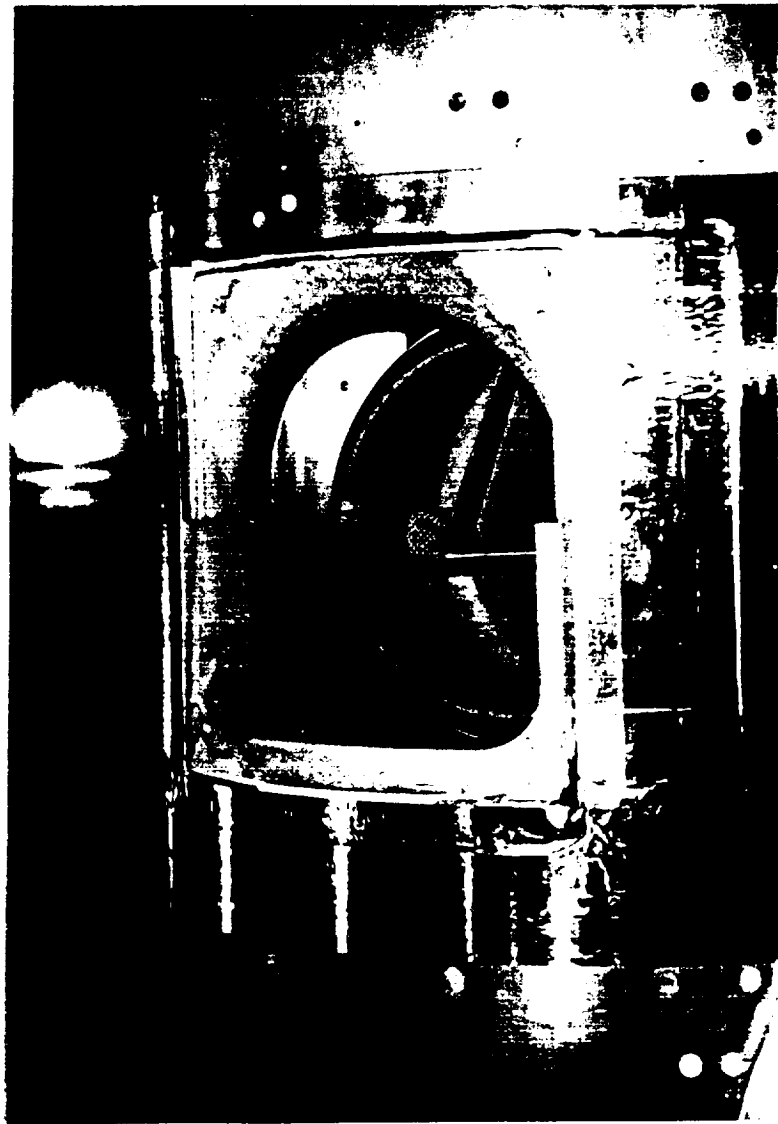
Configuration Description

Configuration No. 53
Aft Treatment: 200IA-B(23")-(D) Lower
Fwd Treatment: IdRamp-A-(u) - Moved Aft
Fillers: Yes
 (119" Cavity)
 * No Shift

Scoring

Cruise SPL: 137.5
Mach Margin: fair
 α Margin: fair
 β Margin: ?
 γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 54

Aft Treatment: 200IA - B(23°) - (D)

Fwd Treatment: IRL-ρ-A(AFT) - (U)

Fillers: yes

* *No Skirt* (Config 53 with Bondo
in place of tape
Scoring on Fwd Treatment)

Cruise SPL: 137.5

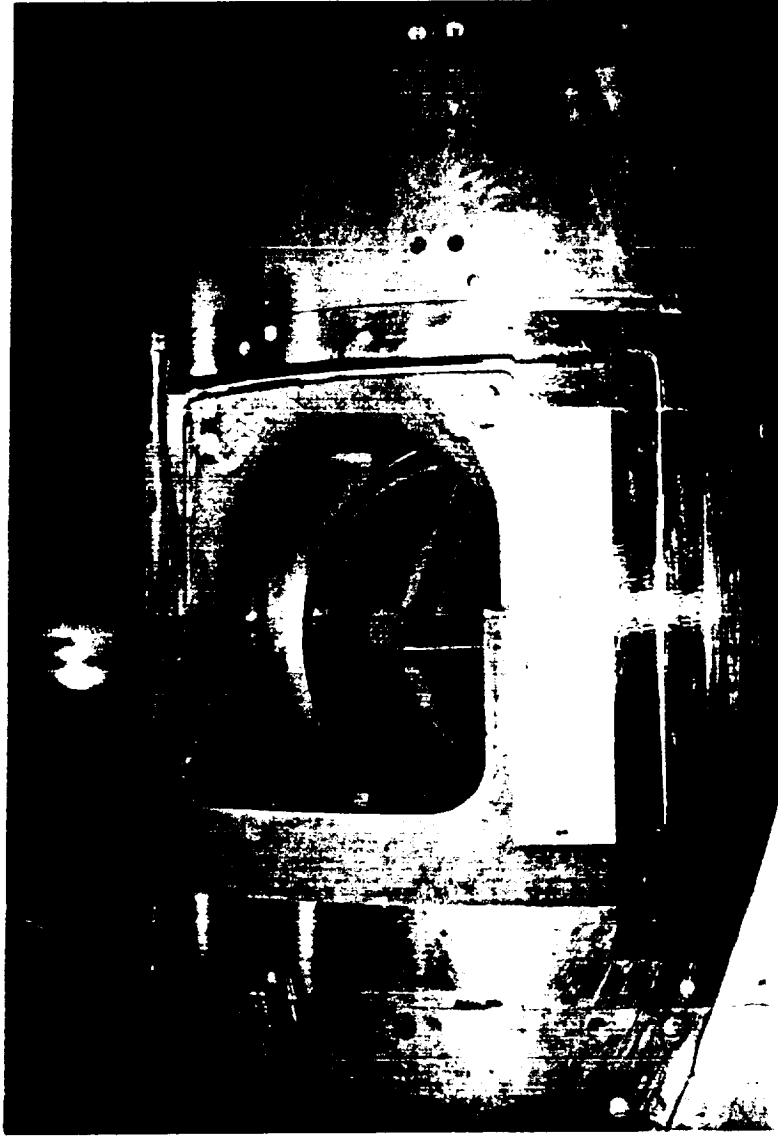
Mach Margin: fair

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 55

Aft Treatment: 200 In - B (2.3") - (D)

Fwd Treatment: In Ramp - A (1ft) - (a) - Bondo

Fillers: yes

* Large Skirt

Scoring

Cruise SPL: 137.2

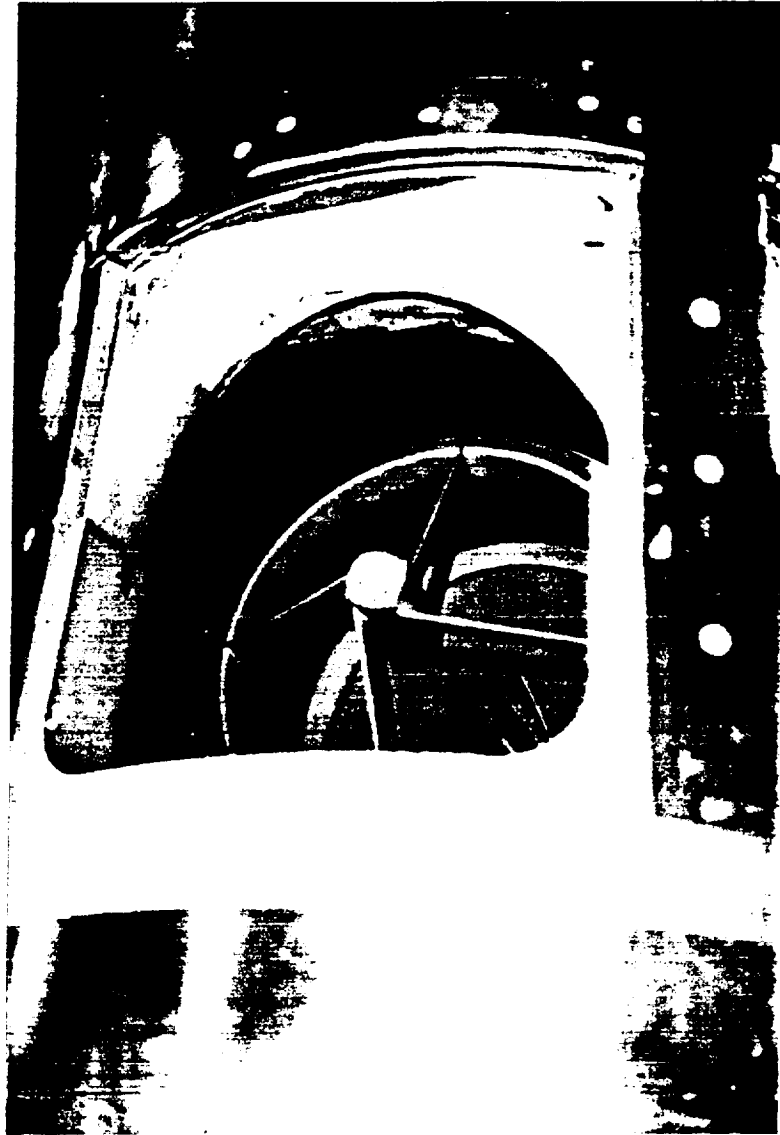
Mach Margin: fair

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

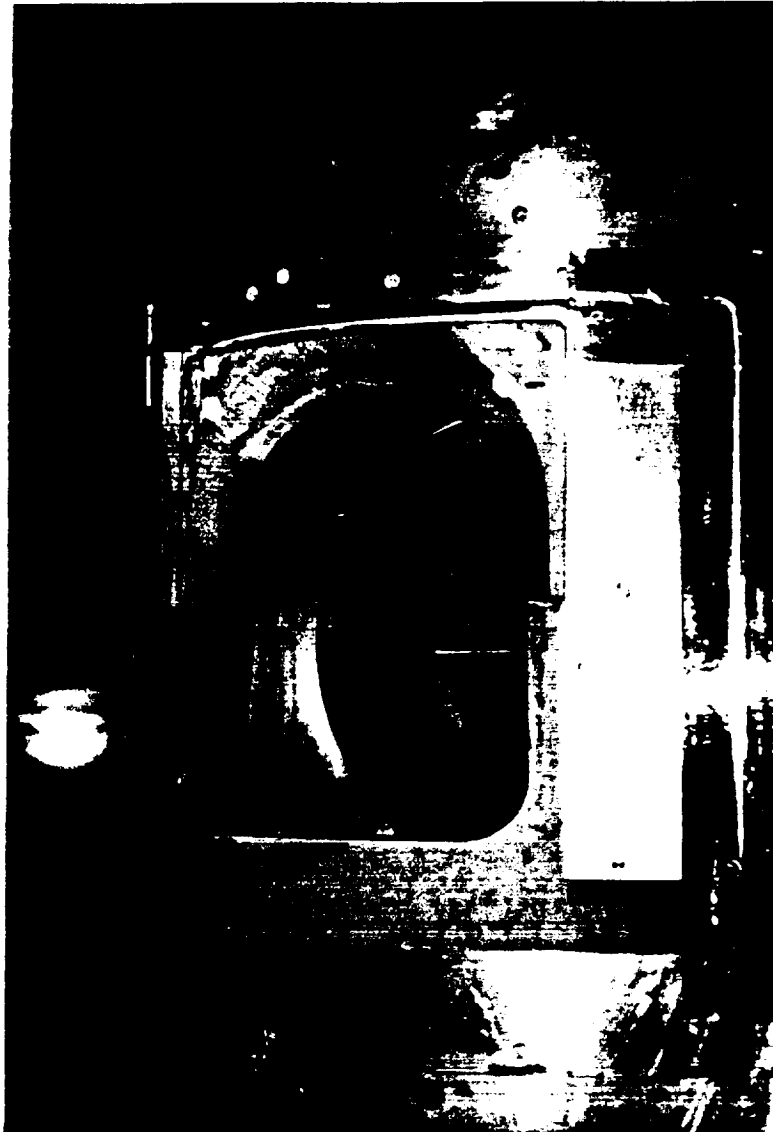
Configuration Description

Configuration No. 56
Aft Treatment: 200 IA - B(23") - (D)
Fwd Treatment: IR Ramp - A(Aft) - (u) - Bondo
Fillers: Yes

Scoring

Cruise SPL: 140.2
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

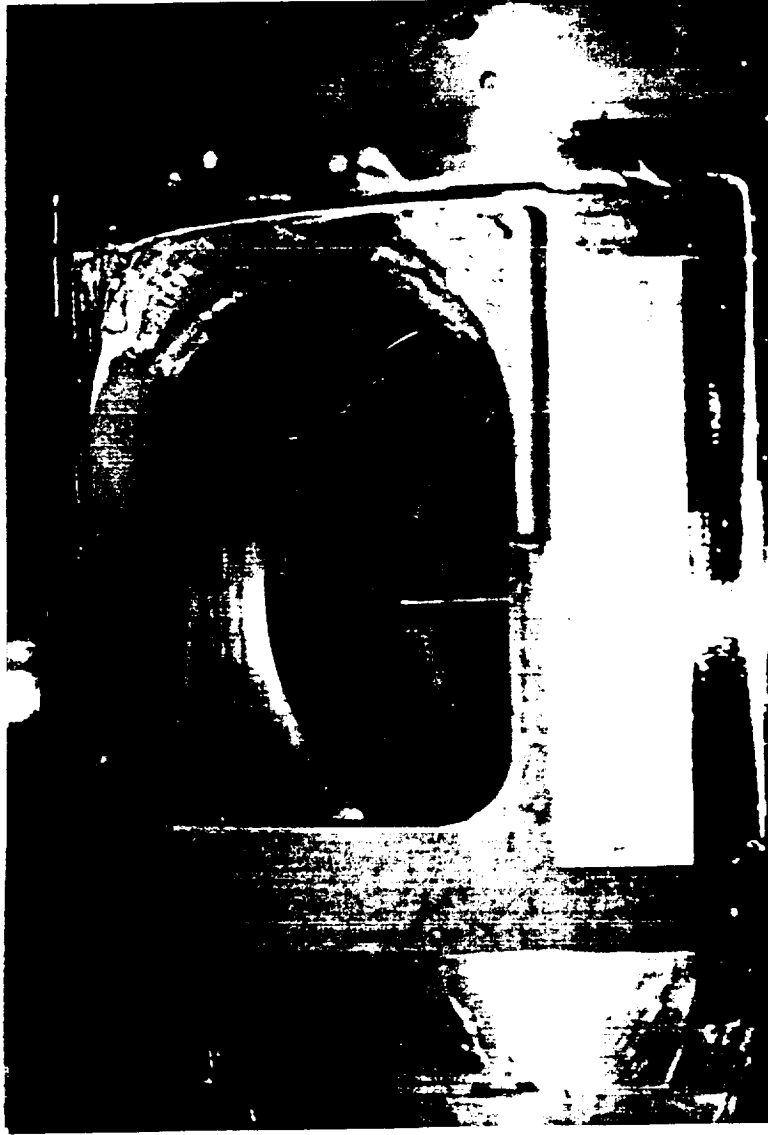
Configuration Description

Configuration No. 57
Aft Treatment: 200 I/A - B(23") - (u)
Fwd Treatment: In Res - A(Aft) - (u) - Bondo
Fillers: Yes
* No Skirt

Scoring

Cruise SPL: 146.7
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

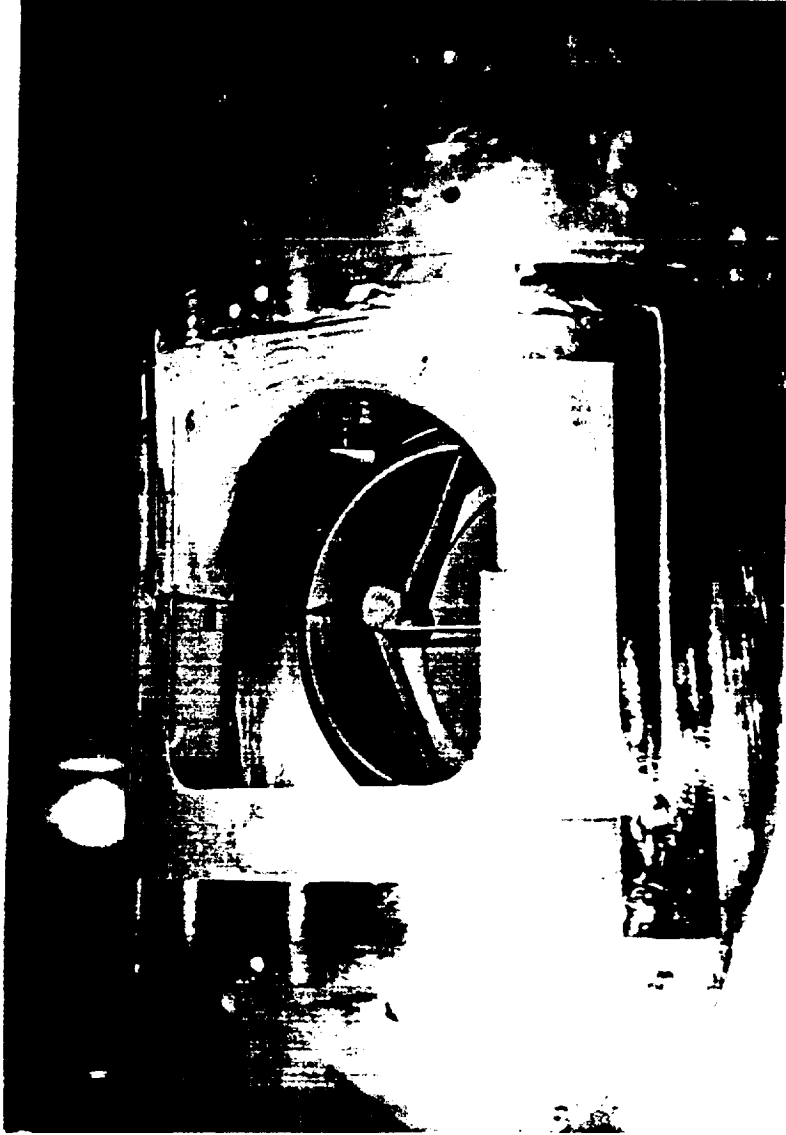
Configuration Description

Configuration No. 58
Aft Treatment: 200 IA - B (23") - (D) - Bondo
Fwd Treatment: Isolamp - A (Aft) - (U) - Bondo
Fillers: yes
No Skirt

Scoring

Cruise SPL: 136.9
Mach Margin: fair
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 59

Aft Treatment: 200IA-B(23")-(D)-(Modified Corners/Bands)

Fwd Treatment: 200Ramp-A(AFT)-(4)-(Square Corners/Bands)

Fillers: Yes

* No Skirt

Scoring

Cruise SPL: 136.5

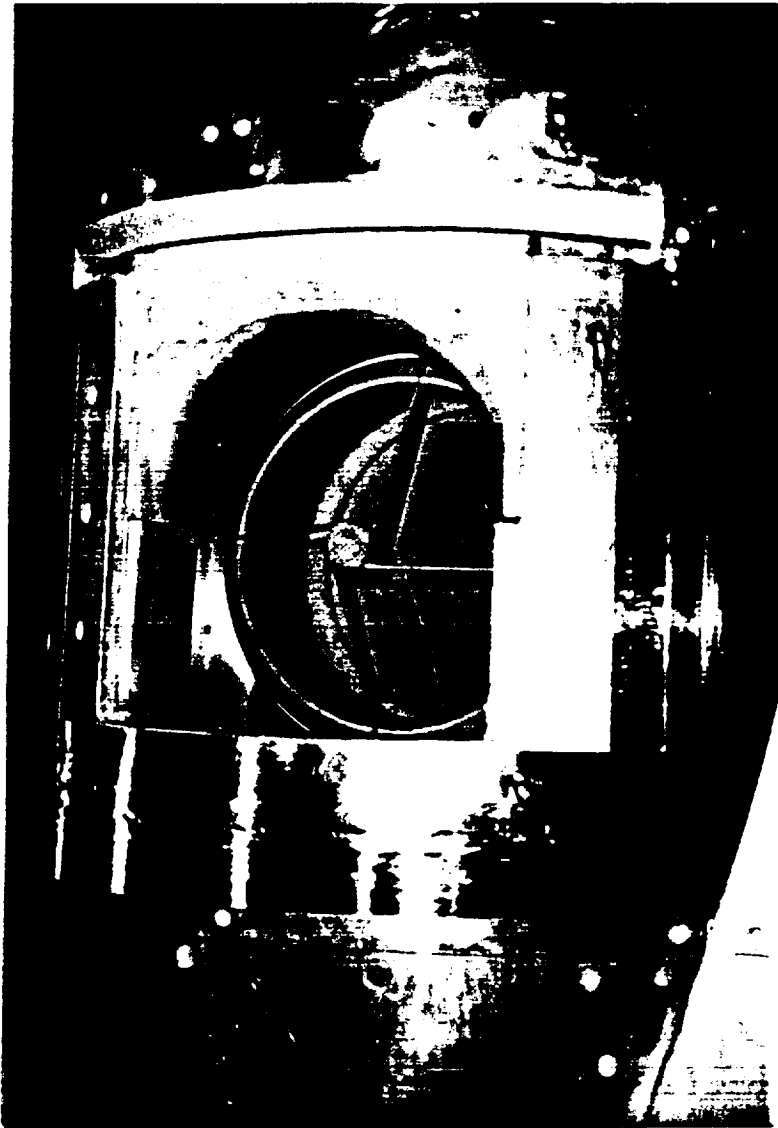
Mach Margin: fair

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 60

Aft Treatment: 200IA-B(23")-(D)-(Contour Mod / Bld. Bonds)

Fwd Treatment: In Rem D-A (AFF) -(U)-(Sq Corners / Bonds & Skirt)

Fillers: yes

No aft skirt

Scoring

Cruise SPL: 135.9

Mach Margin: good

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 61

Aft Treatment: 200IA-B(23")-(D)-(Contour Mod/Blk. Bando)

Fwd Treatment: 12Bamp-A(Aft)-(C)-(Sq. Corners/Bando & Skirt)

Fillers: YES

* Large Skirt Aft

Scoring

Cruise SPL: 136.2

Mach Margin: fair

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 62
 Aft Treatment: 200IA-B(23")-(Way D)-(Contour Mod / B/L Bonds)
 Fwd Treatment: IRamp-A(Aft)-(u)-(5g Coarset / Bonds / Skirt)
 Fillers: yes
 * No Aft Skirt

Scoring

Cruise SPL: 135.4
 Mach Margin: good
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 63

Aft Treatment: 200IA-8(23")-(Wing D) -
(Contrar Mod / Bld. Bordo)

Fwd Treatment: I-Ramp-A(Aff) - (ca) -
Sg Corners / Bordo / Skirt

Fillers: yes

* No Aft Skirt - 0.090 Trips ahead
of Cavity (12")

Scoring

Cruise SPL: 135.0

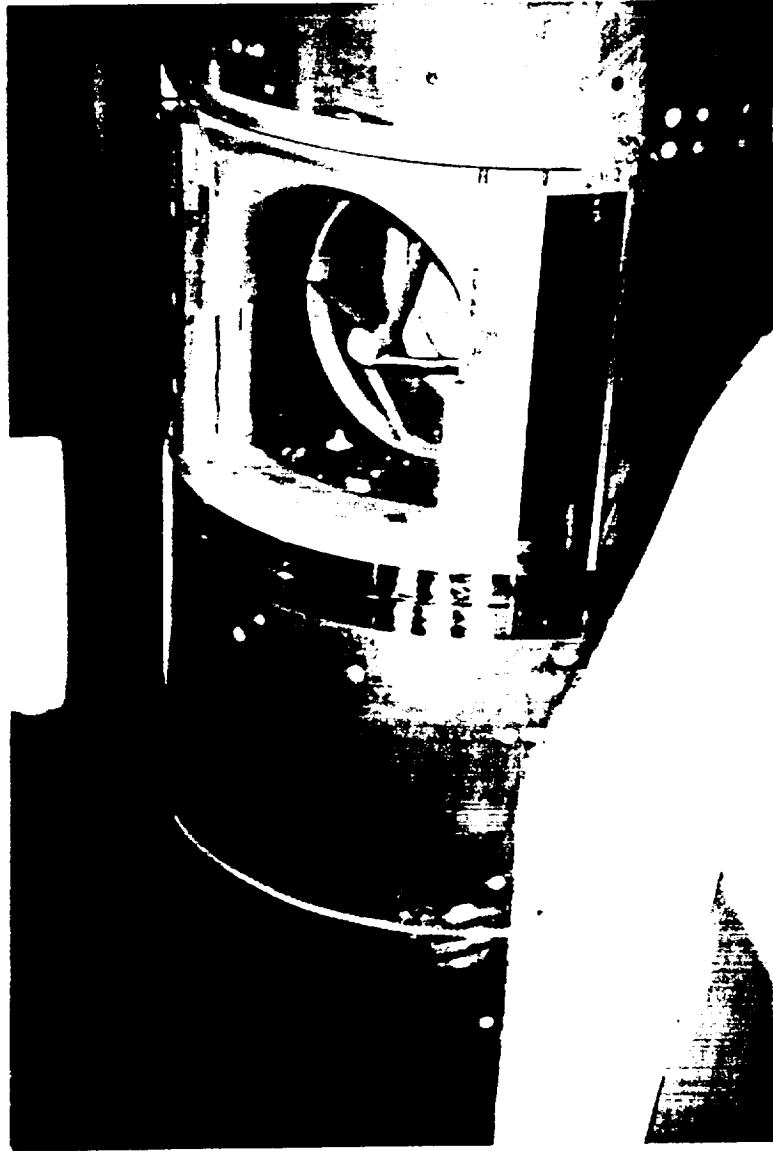
Mach Margin: good

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

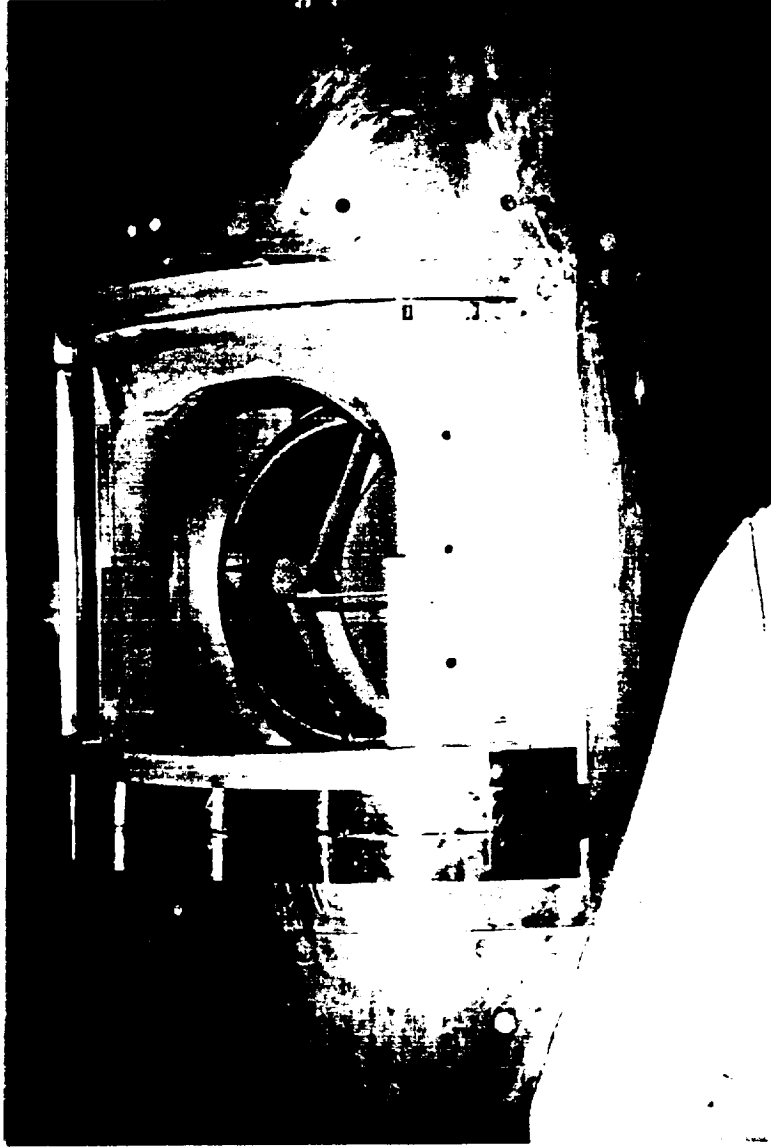
Configuration Description

Configuration No. 64
Aft Treatment: 200 IA-B(23")-(Way D)-(Contour Mod / BIK. Bondo)
Fwd Treatment: 1a Ramp - A(Aft) - (A) - Square / Bondo / Skirt
Fillers: NO
* No Aft Skirt

Scoring

Cruise SPL: 135.4
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: good



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 65-68

Aft Treatment:

200 IA - B(23") - (Full Down)
Contour Mod / Full Bondo / No Skirt

Fwd Treatment:

I-Ramp - A(Aft) - (cup)
Square / Bondo / Skirt

Fillers:

No

* Telescope Balance Unlocked

Scoring

Cruise SPL:

135.3

Mach Margin:

good

α Margin:

good

β Margin:

good

γ Margin:

good

Overall Score:

Excellent



Config.

β

SPL

65

0°

135.3

66

-1°

135.5

67

+1°

135.9

SOFIA II Wind Tunnel Test

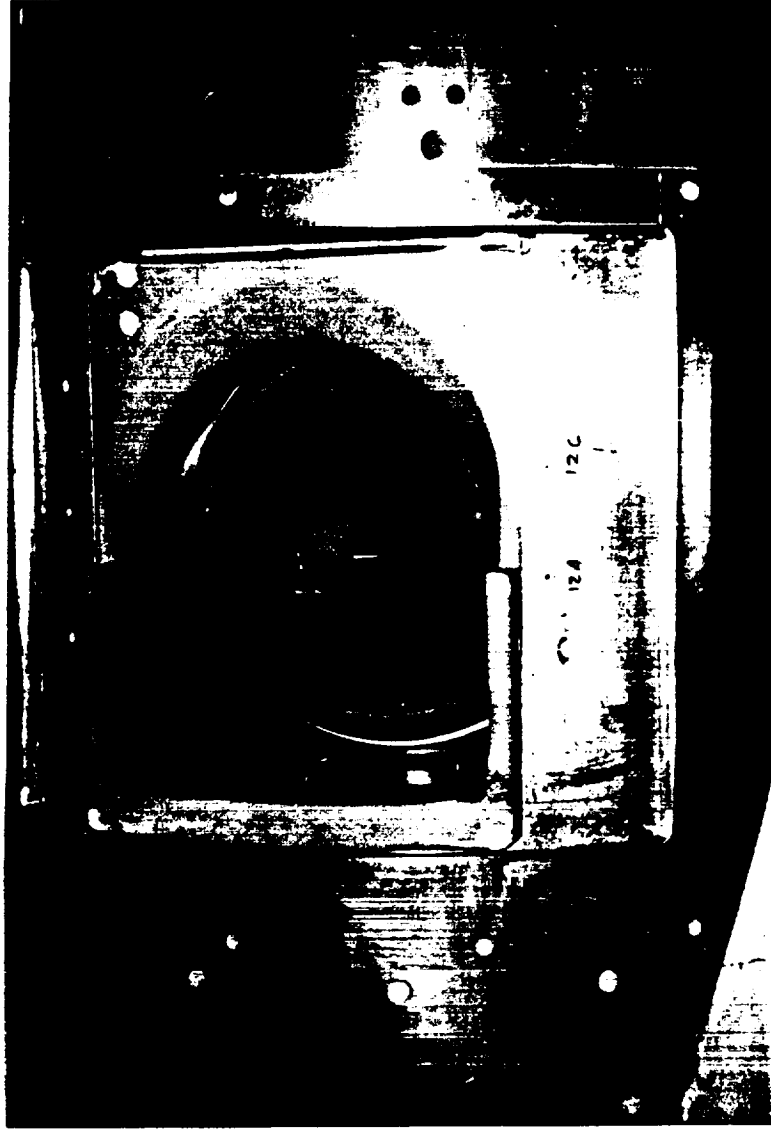
Configuration Description

Configuration No. 69
Aft Treatment: SPIA - A - (D)
Fwd Treatment: I₁Ramp - A - (U)
Fillers: No

Scoring

Cruise SPL: 138.0
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: fair



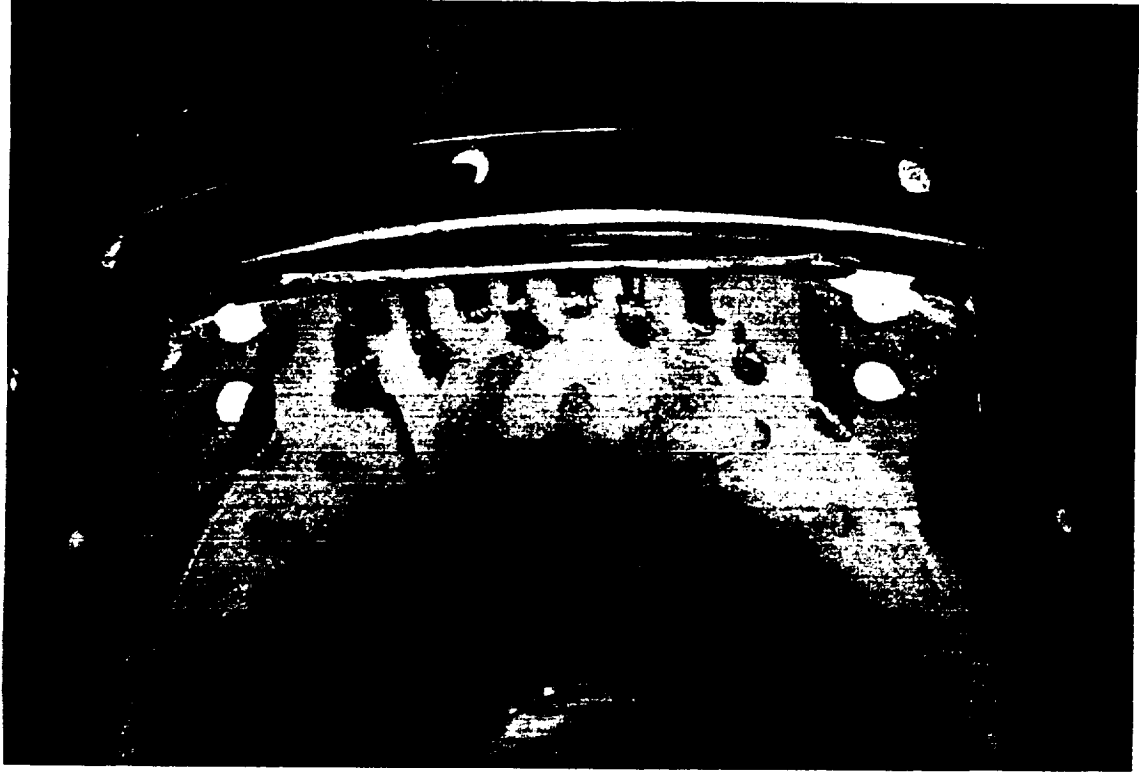
SOFIA II Wind Tunnel Test

Configuration Description

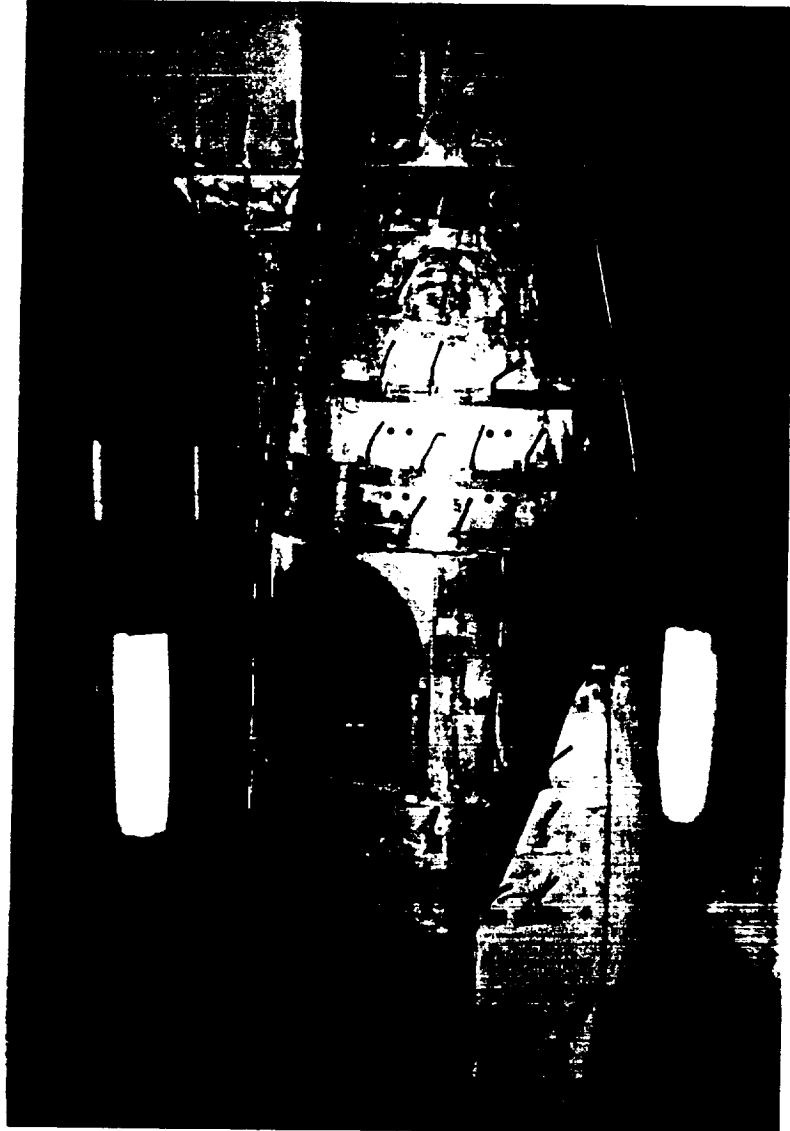
Configuration No. 70
 Aft Treatment: SPIA - A - (D)
 Fwd Treatment: In Ramp - A - (u)
 Fillers: No
 # Config 69 w/ oil flow

Scoring

Cruise SPL: See Config 69
 Mach Margin: "
 α Margin: "
 β Margin: "
 γ Margin: "
 Overall Score: "



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 71
Aft Treatment: SPIA - A - (D)
Fwd Treatment: InRamp - A - (C)
Fillers: No
Config 69 w/ Tests

Scoring

Cruise SPL: 137.3
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: ?

Overall Score: 'fair

SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 72

Aft Treatment: SPIA - A - (D)

Fwd Treatment: In Ramp - A - (U)

Fillers: No

* Boundary Layer Enhancement
9° Fwd of Cavity
Scoring

Cruise SPL: 137.3

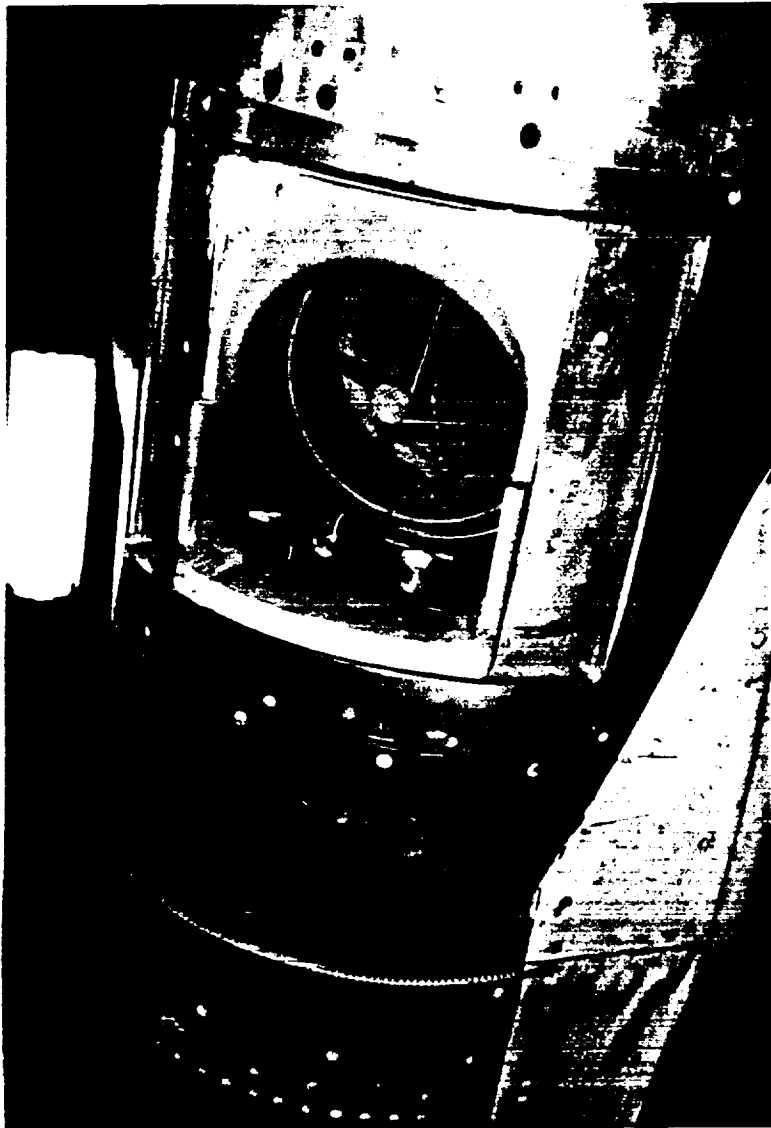
Mach Margin: good

α Margin: good

β Margin: ?

γ Margin: good

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 73

Aft Treatment: SPIA - B - (way Down)

Fwd Treatment: In Ramp - A - (u)

Fillers: No

* Boundary Layer Enhancement
9" Fwd of Cavity

Scoring

Cruise SPL: 137.6

Mach Margin: good

α Margin: good

β Margin: ?

γ Margin: ?

Overall Score: fair



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 74
Aft Treatment: SPZA-B - (Way Down)
Fwd Treatment: untreated
Fillers: No
* w/ Boundary Layer Enhancement

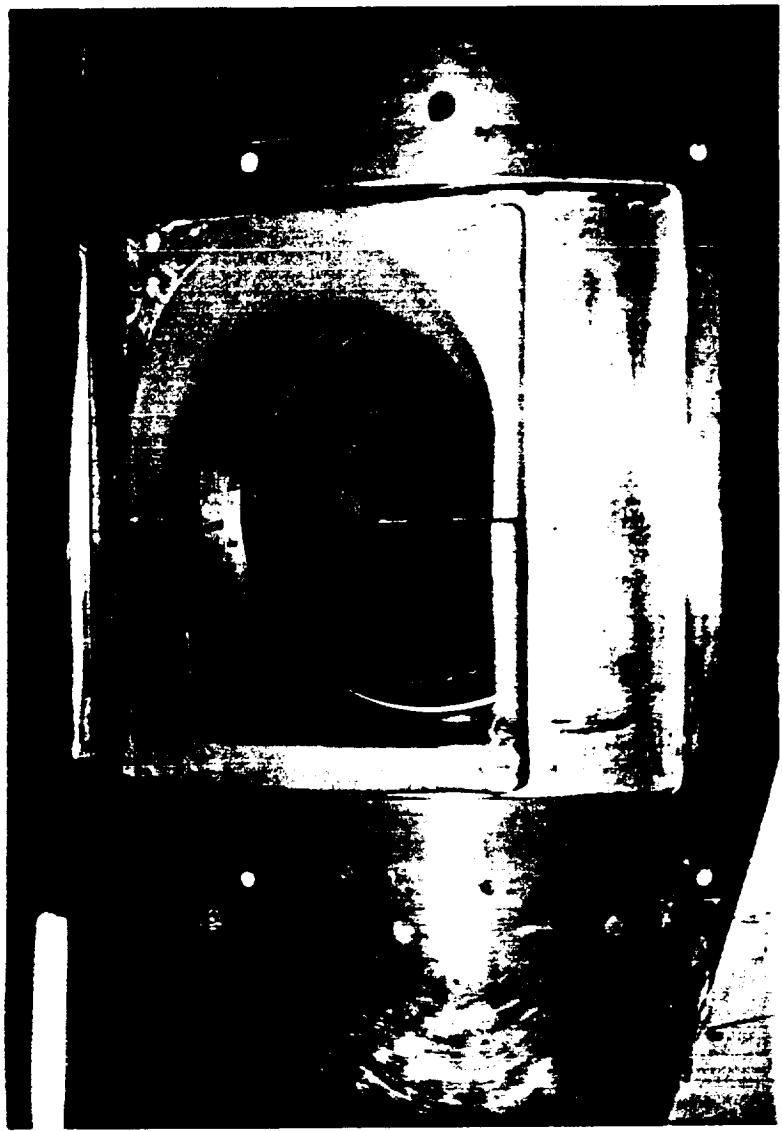
Scoring

Cruise SPL: 138.3
Mach Margin: fair
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 75
Aft Treatment: SPIA - A - (u)
Fwd Treatment: In Ramp - A - (u)
Fillers: No
No Skirt Fwd

Scoring

Cruise SPL: 145.8
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a

SOFIA II Wind Tunnel Test

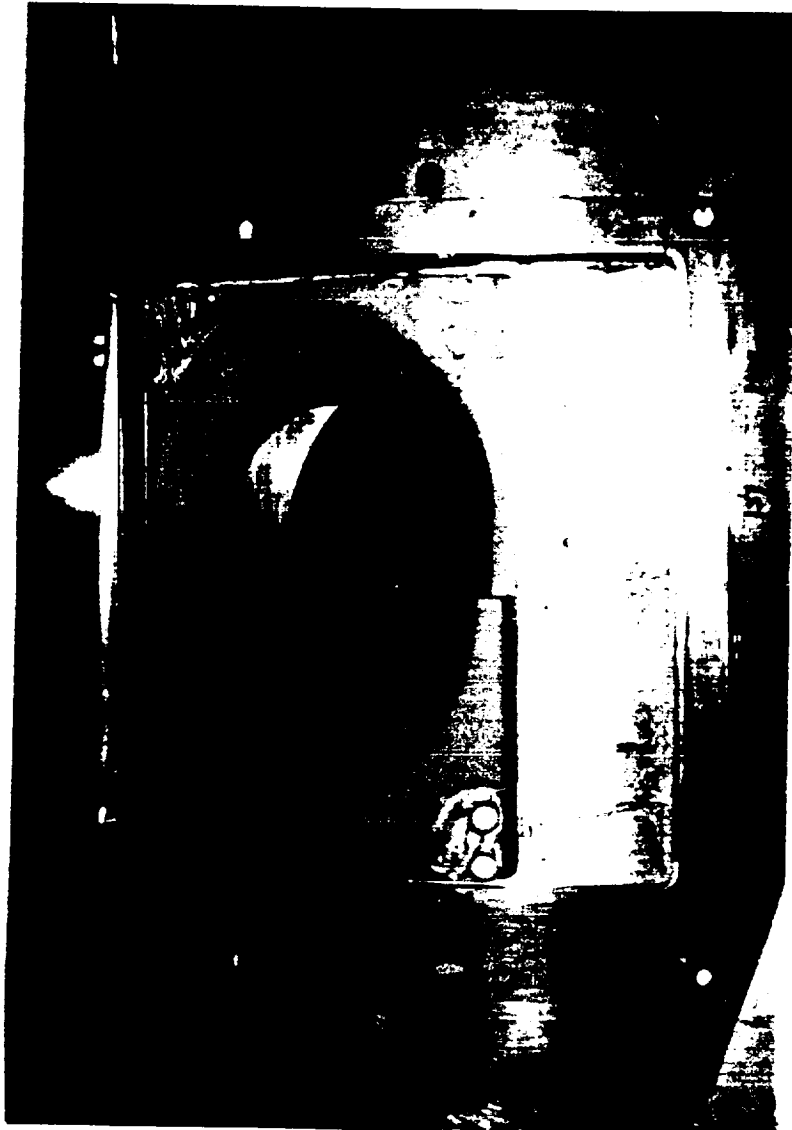
Configuration Description

Configuration No. 76
Aft Treatment: SPIA - A - (D)
Fwd Treatment: SPIA - A - (C)
Fillers: No

Scoring

Cruise SPL: 138.6
Mach Margin: fair
 α Margin: fair
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

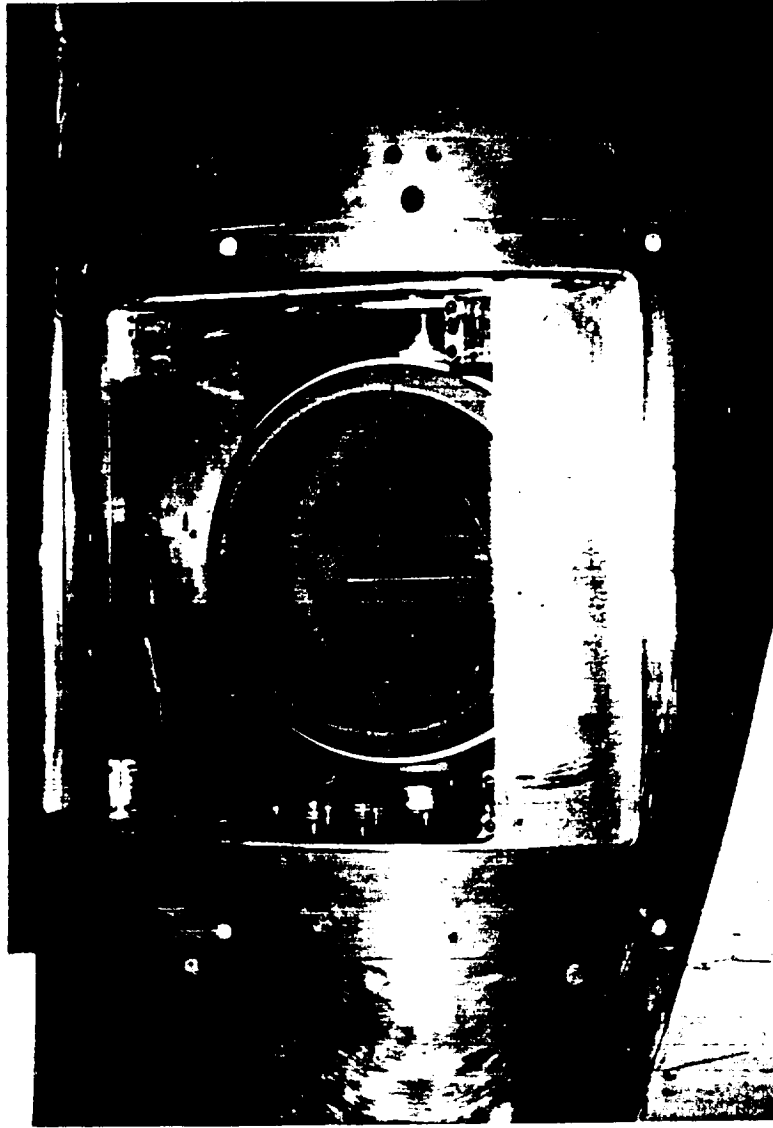
Configuration Description

Configuration No. 77
Aft Treatment: Untreated
Fwd Treatment: Untreated
Fillers: No

Scoring

Cruise SPL: 153.7
Mach Margin: w/a
 α Margin: w/a
 β Margin: ?
 γ Margin: ?

Overall Score: w/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 78
Aft Treatment: Baseline
Fwd Treatment: "
Fillers: "

Scoring

Cruise SPL: N/A
Mach Margin: N/A
 α Margin: N/A
 β Margin: N/A
 γ Margin: N/A

Overall Score: —



SOFIA II Wind Tunnel Test

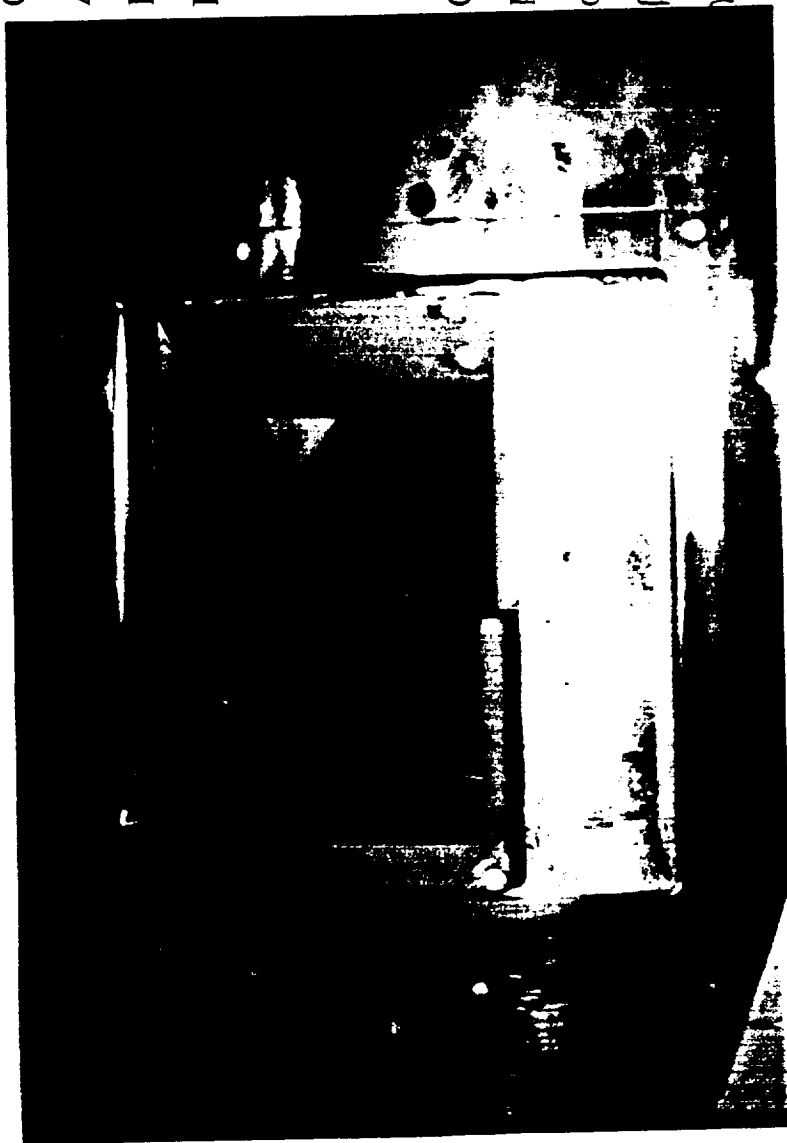
Configuration Description

Configuration No. 79
Aft Treatment: In Ramp - A - (D)
Fwd Treatment: In Ramp - A - (C)
Fillers: No

Scoring

Cruise SPL: 153.6
Mach Margin: a/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: a/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 80

Aft Treatment: SPIA - A - (D)

Fwd Treatment: In Ramp - A - (u)

Fillers: No

No Skirts

Scoring

Cruise SPL: 138.3

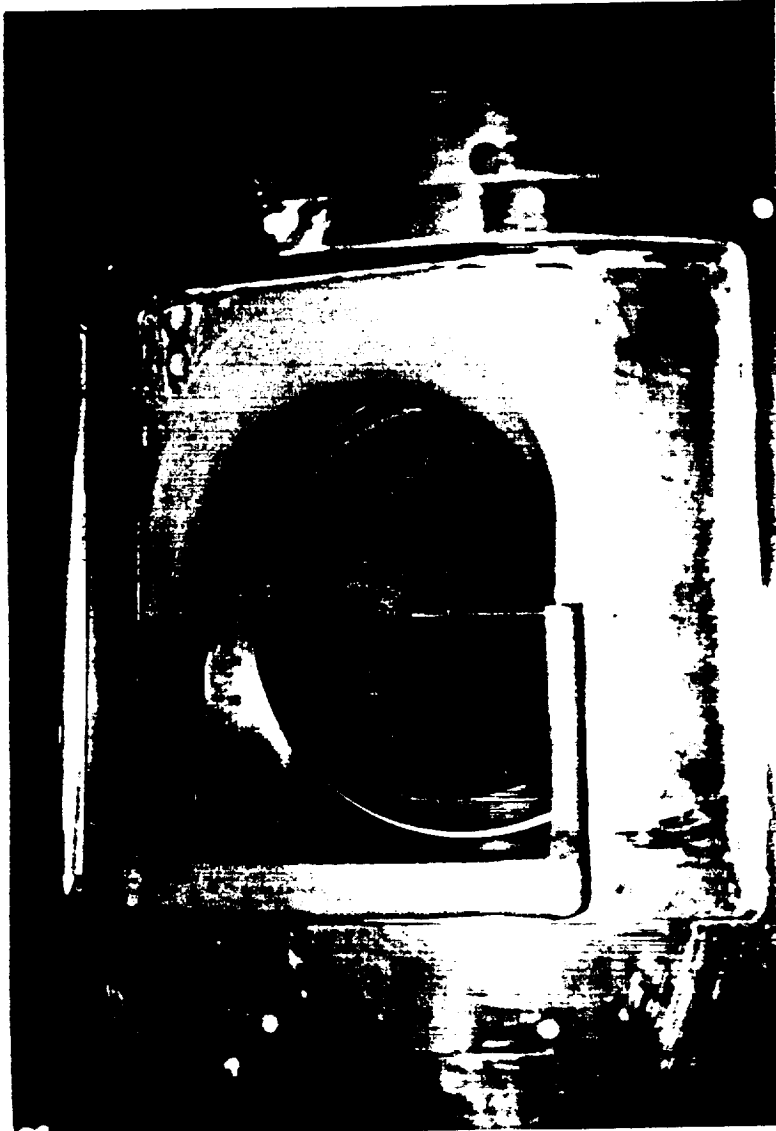
Mach Margin: fair

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

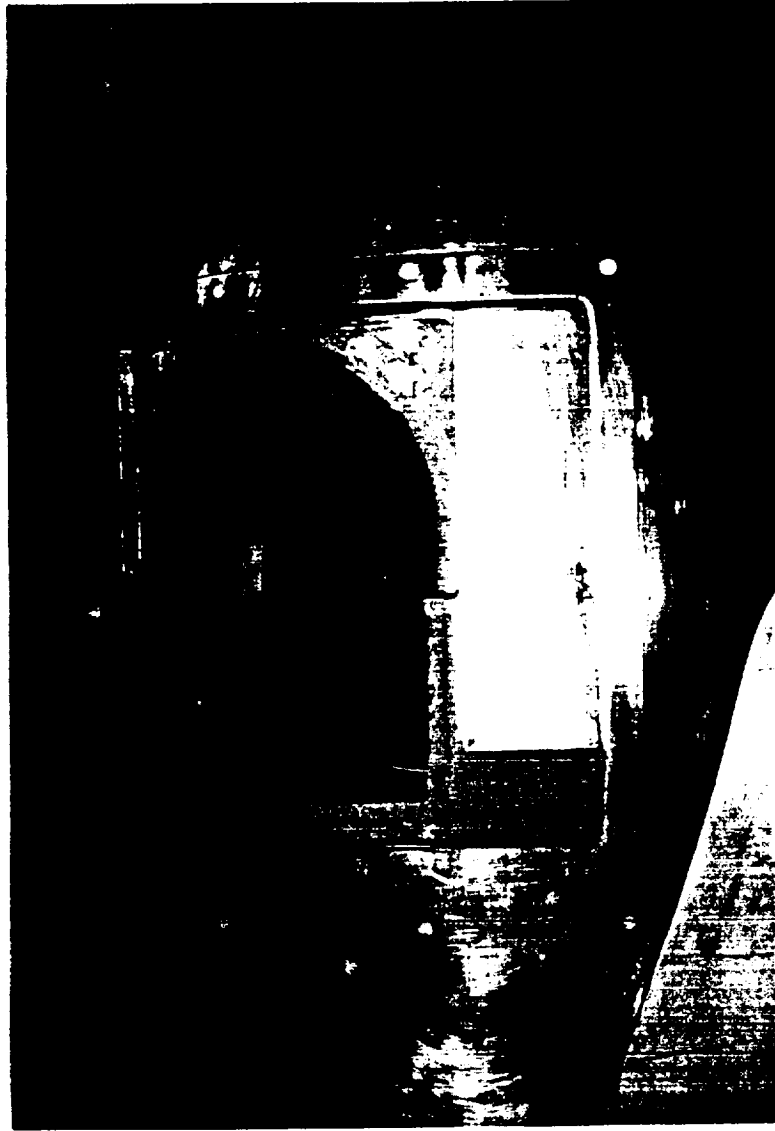
Configuration Description

Configuration No. 81

Aft Treatment: SPIA-A-(D)

Fwd Treatment: In Ramp-A-(u)

Fillers: Yes & Bando



Scoring

Cruise SPL: 138.1

Mach Margin: fair

α Margin: ?

β Margin: ?

γ Margin: ?

Overall Score: fair

SOFIA II Wind Tunnel Test

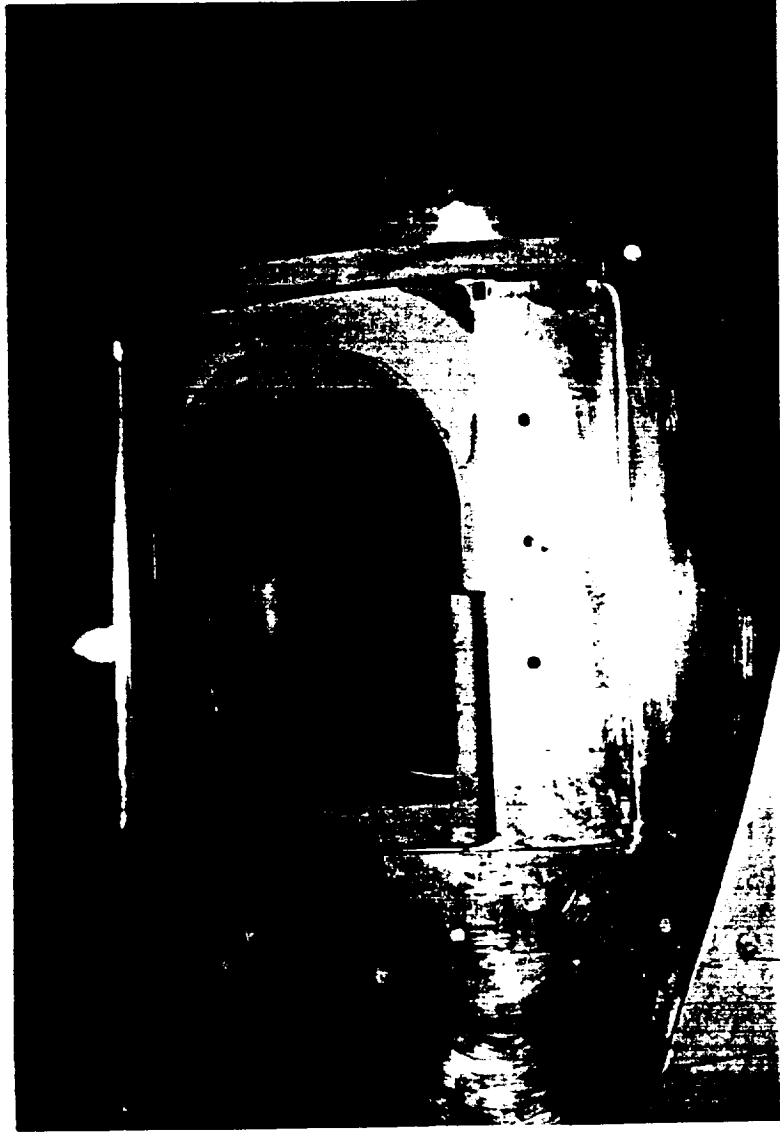
Configuration Description

Configuration No. 82
Aft Treatment: SPIA - A-(D)
Fwd Treatment: In Ramp - A-(u)
Fillers: No
** Bondo aft lip (Cover strip removed)*

Scoring

Cruise SPL: 14/.8
Mach Margin: u/a
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: u/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 83

Aft Treatment: 200IA - B(20") (way D) -
(Contour Mod / Bk. Bondo)

Fwd Treatment: In Ramp - A(Aft) - (ca) -
(Square / Bondo / Skirt)

Fillers:

No

* Aft skirt removed

Scoring

Cruise SPL: 137.3 / 137.1

Mach Margin:

good

α Margin:

fair

β Margin:

?

γ Margin:

good

Overall Score:

good



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 84
Aft Treatment: 200IA - B(20") - (Way D) -
(Contour Mod / -200 Cover Strip)
Fwd Treatment: In Ramp - A(Aft) - (u) -
Fillers: (Square / Bondo / Skirt)
No
* Aft skirt removed

Scoring

Cruise SPL: 140.2
Mach Margin: fair
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: 4/a

SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 85
Aft Treatment: 200IA-B(20") (Way Dean) -
(Contour Mod)
Fwd Treatment: In Ramp - A(Aft) - (u) -
(Square / Bondo / Skirt)
Fillers: No
* No Aft Skirt

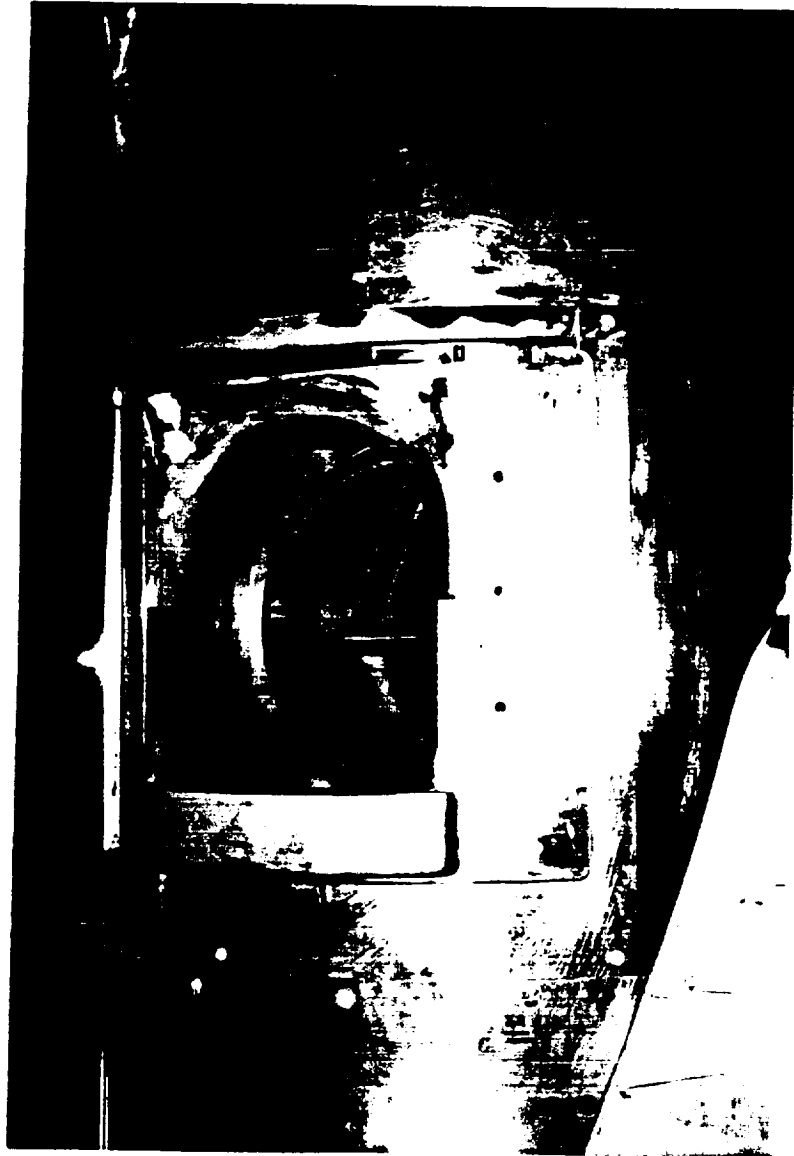
Scoring

Cruise SPL: 139.6
Mach Margin: fair
 α Margin: ?
 β Margin: ?
 γ Margin: ?

Overall Score: 4/a



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 86 - 88

Aft Treatment: 200IA-B(20°)-(way Down)-
(Contour Mod / Bulbhead Bondo)

Fwd Treatment: In Ramp - A(AFT) - (Clp) -
(Square / Bondo / Skirt)

Fillers: No

No aft skirt / Telescope active

Scoring

Cruise SPL: 136.0

Mach Margin: good

α Margin: good

β Margin: good

γ Margin: fair

Overall Score: good

<u>Config</u>	<u>β</u>	<u>SPL</u>
86	0°	136.0
87	-1°	136.3
88	+1°	136.6

SOFIA II Wind Tunnel Test

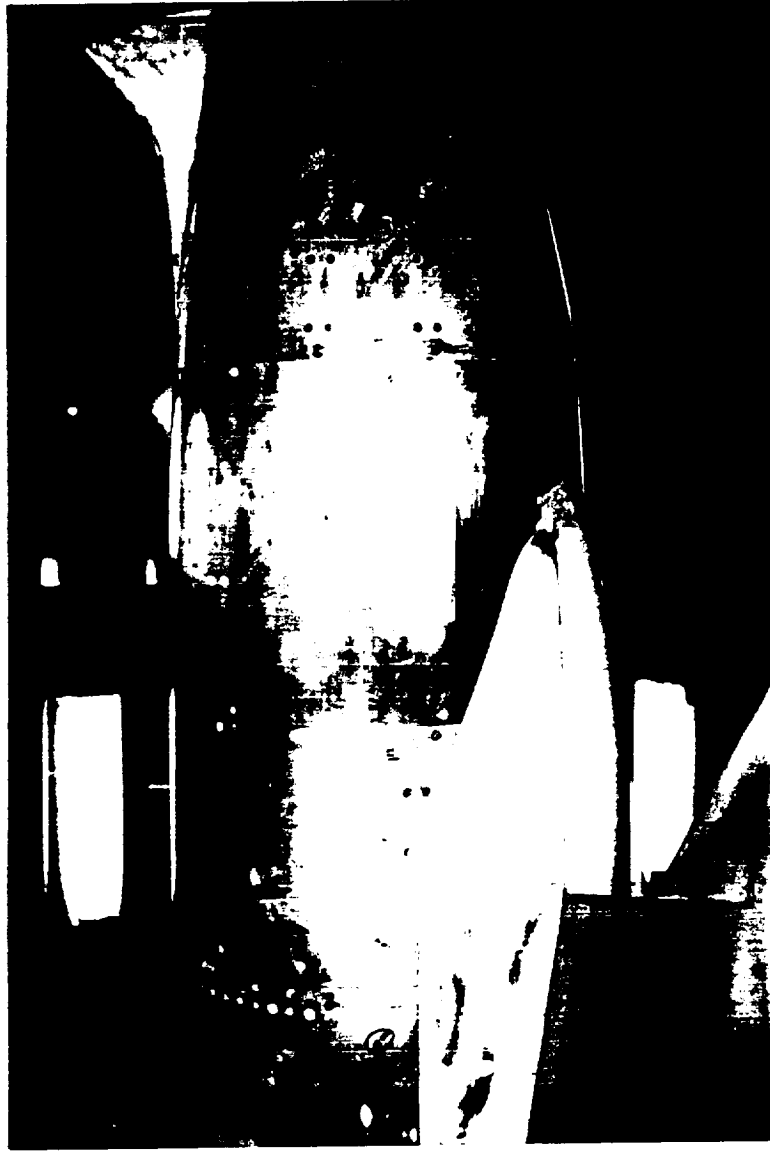
Configuration Description

Configuration No. 89 - 91
Aft Treatment: Baseline
Fwd Treatment: Baseline
Fillers: N/A

Scoring

Cruise SPL: N/A
Mach Margin: N/A
 α Margin: N/A
 β Margin: N/A
 γ Margin: N/A

Overall Score: —



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 92
 Aft Treatment: Splitter Plate
 Fwd Treatment: "
 Fillers: No

Scoring

Cruise SPL: 145.2
 Mach Margin: fair
 α Margin: fair
 β Margin: ?
 γ Margin: fair

Overall Score: u/a



SOFIA II Wind Tunnel Test

Configuration Description

Configuration No. 93
Aft Treatment: Conf 92 w/ Tufts
Fwd Treatment: "
Fillers: No

Scoring

Cruise SPL: -

Mach Margin: -

α Margin: -

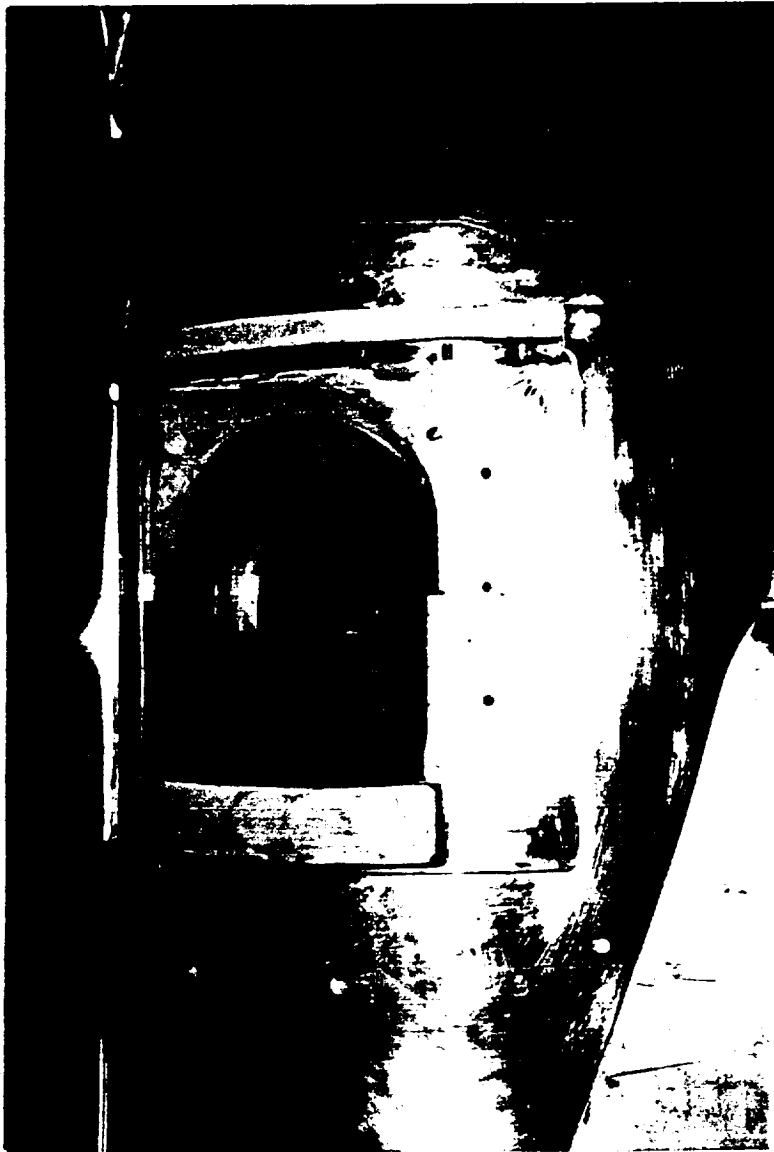
β Margin: -

γ Margin: -

Overall Score: -



SOFIA II Wind Tunnel Test



Configuration Description

Configuration No. 94
Aft Treatment: Co-fig 83
Fwd Treatment: Co-fig 83 / No Skirt
Fillers: No

Scoring

Cruise SPL: 136.2
Mach Margin: good
 α Margin: good
 β Margin: ?
 γ Margin: good
Overall Score: good